part 2

Neal

WITNESS DIRECT TESTIMONY SUMMARY
CASE NO. PUR-2020-00031

Witness: James L. Neal

Title: General Manager – Corporate Strategic Planning and Fuel Management

Company Witness James L. Neal provides an overview of the calculation of fuel costs that are recoverable by the Company over the period beginning May 1, 2020 through June 30, 2021, and briefly discusses the factors influencing the change in the fuel factor over last year's proceeding, including changes in fuel commodity prices since that time.

Mr. Neal testifies that for the July 1, 2020 through June 30, 2021 fuel year, the Company projects Virginia jurisdictional fuel expenses, including purchased power expenses, of approximately $1.24 billion, translating into a current period fuel factor rate of 1.8569¢/kWh. The Company's projected June 30, 2020 fuel deferral balance is approximately ($80.7) million, representing the sum of two projected June 30, 2020 balances, translating into a prior period factor rate of (0.1212)¢/kWh. Together, these components translate into a total proposed fuel factor rate of 1.7357¢/kWh for the period July 1, 2020 through June 30, 2021. For a residential customer using 1,000 kWh per month, the typical bill would decrease $5.89, or by 4.8%. For a customer taking Primary Service on a GS-4 rate with an 83% load factor utilizing 10,000 kW and 6,000,000 kWh, the typical bill would decrease by $35,382 or 10.16%.

Mr. Neal explains that the decrease in the Company's projected fuel expense is driven primarily by changes in the commodity price forecast. The forecasted prices are significantly lower than the forecast for the prior fuel case, particularly for natural gas and power.

Mr. Neal next addresses certain operational performance metrics, and the Company's approach to meet customers' needs and demands for power at the lowest reasonable cost, utilizing a diverse mix of reliable, efficient self-generation, and non-utility generation resources, as well as economy purchases from the wholesale power market.

Lastly, Mr. Neal introduces the Company's other witnesses in this proceeding.

DIRECT TESTIMONY
OF
JAMES L. NEAL
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00031

Q. Please state your name, business address, and position of employment.

A. My name is James L. Neal and my business address is 120 Tredegar Street, Richmond, Virginia 23219. I am General Manager, Corporate Strategic Planning and Fuel Management of Dominion Energy, Inc. ("Dominion Energy"). A statement of my background and qualifications is attached as Appendix A.

Q. What are your management responsibilities with respect to Virginia Electric and Power Company (the "Company")?

A. I am responsible for Corporate Strategic Planning & Fuel Management at Dominion Energy. This includes responsibility related to the Company's fuel consumption forecasting and pricing, along with fuel management, which includes procurement, transportation, scheduling, hedging, and overall fuel portfolio optimization.

Q. What is the purpose of your testimony in this proceeding?

A. I will provide an overview of the calculation of fuel costs that are recoverable by the Company over the period beginning May 1, 2020 through June 30, 2021, and will briefly discuss the factors influencing the change in the fuel factor over last year's proceeding, including changes in fuel commodity prices since that time. In addition, I will address the Company's request to implement the proposed fuel rate reduction on May 1, 2020, on an interim basis. I will also discuss certain operational performance metrics, and our

ongoing initiatives to minimize fuel costs and secure an adequate, reliable fuel supply for our generation stations on behalf of our customers. Finally, I will introduce the Company's other witnesses in this proceeding.

Q. What fuel factor does the Company propose in this case?

A. The proposed Virginia jurisdictional fuel rate is comprised of two elements. First, for the July 1, 2020 through June 30, 2021 fuel year, the Company projects Virginia jurisdictional fuel expenses, including purchased power expenses, of approximately $1.24 billion, translating into a current period fuel factor rate of 1.8569 cents per kilowatt-hour ("¢/kWh"), as Company Witness George G. Beasley discusses. Second, the Company's projected June 30, 2020 fuel deferral balance is approximately ($80.7) million, representing the sum of two projected June 30, 2020 balances, translating into a prior period factor rate of (0.1212)¢/kWh. Together, these components translate into a total proposed fuel factor rate of 1.7357¢/kWh for the period July 1, 2020 through June 30, 2021, as Company Witness Beasley explains.

To facilitate the accelerated implementation of a fuel rate reduction, the Company is filing its application, testimony, and schedules supporting a revision to the fuel factor approximately two months ahead of the typical early May filing date, and requests that the Commission implement the lower fuel rate, on an interim basis, effective for usage on and after May 1, 2020. The Company has calculated a fuel factor rate that combines the effect of the two components described above and that would remain in effect, with Commission approval, for the fourteen-month period commencing May 1, 2020 and ending June 30, 2021.

Q. How do the total fuel factor rates you have discussed compare to the fuel rates approved by the Commission and in effect since July 1, 2019?

A. In Case No. PUR-2019-00070, the Commission approved a total fuel rate of 2.3254¢/kWh to become effective July 1, 2019. The total proposed fuel factor rate of 1.7357¢/kWh reflects a 0.5897¢/kWh decrease from the current rate. For a residential customer using 1,000 kWh per month, the typical bill would decrease $5.89, or by 4.8%. For a customer taking Primary Service on a GS-4 rate with an 83% load factor utilizing 10,000 kW and 6,000,000 kWh, the typical bill would decrease by $35,382 or 10.16%.

Q. What are the major factors underlying the significant decrease in the fuel factor rate in this proceeding?

A. As discussed by Company Witness Katherine E. Farmer, the decrease in the projected system fuel expense as compared to the 2019 to 2020 fuel year is driven primarily by changes in the commodity price forecast. The forecasted prices are significantly lower than the forecast for the prior fuel case, particularly for natural gas and power.

Q. Please describe any notable changes in the Company's generation portfolio during the prior period or the current period.

A. There are several developments to report for the Company's utility-scale solar projects. During the prior period, the Colonial Trail West Solar Facility, an approximately 142 megawatt ("MW") (nominal alternating current ("AC")) facility located in Surry County, was placed into service in December 2019. In addition, approximately 49 MW AC of solar non-utility generators were placed in service.

During the current period, the Spring Grove 1 Solar Facility, an approximately 98 MW AC facility also located in Surry County, is expected to be in service by October 2020. In addition, the Sadler Solar Facility, an approximately 100 MW AC facility located in Greensville County, is expected to be in service by December 2020.

Q. As measured by Equivalent Forced Outage Rate on demand ("EFORd"), how did the Company's generation fleet perform in 2019 compared to other units within PJM Interconnection, L.L.C. ("PJM")?

A. For 2019, the Company had an annual fleet EFORd of 4.2%, and a January through September EFORd of 4.2%, which compares very favorably to PJM's 2019 January through September pool-wide average of 6.8%.

Q. Do you wish to highlight any aspects of the Company's generation, fuel procurement, and purchased power acquisition practices?

A. Yes. The Company employs a comprehensive and forward-looking approach to meet our customers' needs and demands for power at the lowest reasonable cost, utilizing a diverse mix of reliable, efficient self-generation, and non-utility generation resources, as well as economy purchases from the wholesale power market. Fuel costs are a significant component of overall rates for all classes of our customers, and the Company will continue to act prudently in its fuel procurement practices to minimize costs for the coal, oil, natural gas, wood (biomass), and nuclear fuel that we must purchase to run our power plants. We will also continue to buy in the PJM spot energy market when it is prudent to do so.

Fuel costs are influenced in many respects by conditions that are external to the Company and beyond its control, including fluctuating weather patterns and commodity prices. The Company's comprehensive fuel procurement strategy consists of three key components that help to ensure that fuel costs remain as reasonable as possible for our customers, both now and in the future.

First, the Company's diverse fleet of generation assets, using a variety of fuels and technologies, is a primary tool to protect our customers from the effects of commodity price volatility, commodity delivery disruptions, and other external factors. A diverse fleet of generation assets, covering a balanced mix of fuels, enables the Company to dispatch its fleet in the most economical manner, using and leveraging supply sources to respond to dynamic market conditions, while maintaining reasonable costs and system reliability. Moreover, the addition of resources such as Greensville has enhanced these efforts for the benefit of customers.

Second, ensuring reliable and sufficient access to fuel supply and transport is another key component of the Company's fuel procurement strategy. To achieve this objective, the Company follows a disciplined protocol of purchasing both supply and transport from a diverse portfolio of suppliers and supply regions, with various contract terms and prices. This protocol enables the Company to respond effectively to generation requirements and commodity price fluctuations.

Finally, the Company enters into physical and/or financial transactions in the marketplace that serve to hedge against fuel price uncertainty. These transactions help mitigate the

risk to the Company and its customers associated with unexpected changes in future fuel costs.

Q. What other Company witnesses are filing testimony in this case?

A. The Company is presenting the following additional witnesses, some of whom I have already mentioned in my testimony:

- Mr. Robert G. Thomas, Director of Corporate Strategy, discusses the sources and development of the projected commodity prices for fossil fuels, emissions allowances, and PJM economy power purchases;
- Ms. Katherine E. Farmer, Senior Financial Analyst Specialist, provides information on the forecast of the current period fuel costs, as well as the methodology and models used to project total system energy requirements and fuel expenses;
- Mr. Dale E. Hinson, Manager of Gas Supply, discusses the Company's fossil fuel procurement practices;
- Mr. Tom A. Brookmire, Manager of Nuclear Fuel Procurement, reviews the components of the Company's nuclear fuel cost and the Company's projected nuclear fuel expense rate;
- Ms. Jacqueline R. Vitiello, Manager of Electric Market Operations, explains the Company's interface with PJM, as well as how these purchases contribute to reducing the Company's fuel costs;
- Mr. Ronnie T. Campbell, Supervisor of Accounting for Power Generation, presents the prior period accounting balances for the Company's proposed fuel factor and provides an update on the status of the Company's judgment against the U.S. Department of Energy; and
- Mr. George G. Beasley, Regulatory Specialist, presents the calculations of the current period and prior period components for the Company's proposed fuel factor, along with the impact of that rate on typical customer bills at representative levels of consumption.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS OF JAMES L. NEAL

James L. Neal is General Manager – Corporate Strategic Planning and Fuel Management. He is responsible for overseeing strategic and business planning processes across the enterprise. In addition, he is responsible for fuel management, supporting regulated generation fleets and gas distribution businesses.

Mr. Neal joined Dominion Energy in 1988 as a project/performance engineer at Yorktown Power Station. He became a senior economist in 1993 and an investment analyst in 1996. He was named Manager of Business Planning & Market Analysis in 2001 and promoted to Director of Pricing & Structuring, Business Planning & Market Analysis in 2003. He was named Director of Power Generation Financial Services in 2007 and Director of Power Generation Regulated Operations in 2012. In 2014, he became Director of Financial Management and Commercial support for Dominion Energy. In early 2017, he was named General Manager of Retail and Gas Services. He assumed his current post in late 2019.

He received his bachelor's degree in mechanical engineering from Virginia Tech and his MBA from the College of William & Mary.

WITNESS DIRECT TESTIMONY SUMMARY
CASE NO. PUR-2020-00031

Witness: Robert G. Thomas

Title: Director of Corporate Strategy

Company Witness Robert G. Thomas explains the sources and development of the commodity price projections used to support the Company's fuel expense projections in this proceeding. Specifically, Mr. Thomas describes the source data and method for developing price projections for natural gas, natural gas basis, oil, coal, emissions, carbon, and power.

With respect to changes in market assumptions from the Company's 2019 Virginia fuel factor case, Mr. Thomas testifies that United Brokersheet has changed the spec details regarding Northern Appalachian Coal, and notes that RGGI CO_2 prices have been added to this year's filing.

DIRECT TESTIMONY
OF
ROBERT G. THOMAS
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00031

Q. Please state your name, business address, and position of employment.

A. My name is Robert G. Thomas and my business address is 120 Tredegar Street, Richmond, Virginia 23219. I am the Director of Corporate Strategy in the Corporate Strategy Department of Dominion Energy, Inc. ("Dominion Energy"). In my current position, I am responsible for various analytic activities, including the development of commodity price projections used by Virginia Electric and Power Company (the "Company"). A statement of my background and qualifications is attached as Appendix A.

Q. What is the purpose of your testimony in this proceeding?

A. My testimony will explain the sources and development of the commodity price projections used to support the Company's fuel expense projections in this case.

Q. During the course of your testimony, will you introduce an exhibit?

A. Yes. Company Exhibit No. ___, RGT, consisting of Schedules 1 through 3, was prepared under my supervision and direction, and is accurate and complete to the best of my knowledge and belief.

Q. Please describe the Company's overall process for projecting commodity prices.

A. Commodity price projections are compiled from market data sources for the Company's planning horizon. The availability and transparency of forward commodity markets over

the last several years have eliminated the need to produce forecasts for short-term time horizons. Each month, a comprehensive set of market-based projected commodity prices for natural gas, gas basis, crude oil, No. 6 fuel oil, No. 2 fuel oil, Central and Northern Appalachian coal, emissions allowance costs and power is compiled. Schedule 1 shows prices as of January 31, 2020 for the fuel factor period beginning May 1, 2020 through June 30, 2021.

Q. Please describe the source data and method for developing the natural gas price projections.

A. Natural gas price projections are based on New York Mercantile Exchange Clearport ("NYMEX") Henry Hub futures prices. Henry Hub, located in Louisiana, is a pooling point of several pipelines from various supply regions in the Gulf of Mexico. Henry Hub is widely used throughout the industry as a benchmark for natural gas prices.

Q. Please describe the source data and method for developing the natural gas basis price projections.

A. Natural gas basis price projections are based on Intercontinental Exchange ("ICE") futures prices and Platts postings. Natural gas for the Company's fleet is primarily purchased at several different market points: Transco Zone 5 and Zone 6 Non-New York ("NNY"), TCO Pool (Columbia Gas Transmission), and Dominion South Point. Gas basis at Transco Zone 6NNY, Dominion South Point, and TCO Pool are all traded on ICE. Gas basis at Transco Zone 5 is based on Platts postings.

Q. Please describe the source data and method for developing oil price projections.

A. Projections for crude oil and No. 2 fuel oil are based on NYMEX Clearport futures

products. West Texas Intermediate ("WTI") crude oil is a light sweet product delivered to Cushing, Oklahoma that is priced in terms of $/barrel ("bbl"). This forward contract is a widely used benchmark throughout the industry. For No. 2 fuel oil, futures contracts with a delivery point at New York Harbor are used. Prices are stated in $/gallon, and converted to $/million British thermal unit ("MMBtu") using a conversion factor of 7.2 gallons/MMBtu. Because there is no No. 6 fuel oil product traded on NYMEX, a commonly used broker source, Starfuels, Inc., is employed. The product is defined as 1% sulfur residual oil (quoted in $/bbl), and then converted to $/MMBtu by dividing the quote by a 6.3 MMBtu/bbl conversion factor.

Q. Please describe the source data and method for developing coal price projections.

A. For projection purposes, three distinct product prices based on market quotes are compiled. Specifically, coal price data is obtained from United Power, a division of ICAP United, Inc., which is the primary source for coal pricing in the industry. The first product quote is a Central Appalachian coal with a 12,500 Btu/lb heating value and 1.6 lb/MMBtu sulfur dioxide ("SO_2") content obtained using the CSX Corporation railway system. The second product quote has the same specifications, but is delivered using the Norfolk Southern Corporation railway system. The final product quote is a Northern Appalachian coal with a 13,000 Btu/lb heating value and 4.00 lb/MMBtu SO_2 content. All three of these coals have the potential to be burned in the Company's generating units depending upon commodity and transportation pricing, and specific unit characteristics.

Q. Please describe the source data and method for developing emissions allowances price projections.

A. The Cross State Air Pollution Rule ("CSAPR") requires states to improve air quality by

limiting power plant emissions that cross state lines. The rule covers 28 states, requiring reductions in both nitrogen oxide ("NO_x") and SO_2 emissions. CSAPR is an emissions allowance-based cap-and-trade program. Under CSAPR, allowances are fully bankable for use in future years.

Under CSAPR, environmental SO_2 and NO_x allowance pricing is obtained from Evolution Markets, Inc., a commonly used industry source for environmental pricing data. The price quotes contained in my Schedules are given in dollars per short ton of SO_2 or NO_x allowances available in the market.

There are two "cap-and-trade" markets for NO_x. The first applies throughout the entire year, and includes the 28 states mandated by CSAPR to reduce emissions, including Virginia. The second is a seasonal ozone program and applies to 25 states, also including Virginia. This program creates a five-month ozone season (May to September).

Q. Please describe the source data and method for developing carbon price projections.

A. The Regional Greenhouse Gas Initiative ("RGGI") is the first mandatory market based program in the United States to reduce greenhouse gas emissions. Current member states include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. These states each have a cap and commitments to reduce carbon dioxide ("CO_2") emissions from the power sector.

Starting January 1, 2021, the forecast assumes that Virginia joins RGGI. The carbon allowance is not directly recovered by the fuel rate, but is a factor in how the Company meets load demand and the ultimate costs incurred.

Allowances are offered through quarterly, regional CO_2 allowance auctions. These auctions are sealed-bid, uniform price auctions, which are open to all qualified participants. They result in a single quarterly clearing price. In addition to purchasing allowances at auction, entities are also able to trade allowances on secondary markets, via over-the-counter trades as well as exchanges. More information on the RGGI Consortium can be found at www.rggi.org.

The market price for a RGGI allowance is obtained from Evolution Markets, Inc., a commonly used industry source for environmental pricing data. The allowances that trade on these marketplaces are current year allowances. To provide a price curve beyond 2020, the posted price for a current year credit is escalated at a rate of 2.03% for 2021. This projected market price for a RGGI allowance is shown in Schedule 1.

Q. Describe the source data and method for developing power price ($/MWh) projections, including an explanation and determination of locational power price differences.

A. Price projections for the PJM Interconnection, L.L.C. ("PJM") Dominion Energy Zone ("Dom Zone") region are developed using forward price quotes for the PJM Western Hub ("PJM-W"), along with a locational adjustment to reflect delivery to the Dom Zone. This is necessary because forward PJM Dom Zone quotes are not readily available. The PJM-W forward price projections are based on ICE-reported forward over-the-counter settlement prices. The locational difference is based on three years of historical average differentials for both congestion and losses dating back to March 1, 2018 between the PJM-W Hub region and the PJM Dom Zone delivery point. This locational differential is

then applied to the PJM-W forward market price to develop a proxy for the Dom Zone price.

Q. Please provide a summary of the commodity price sources that are used and indicate where additional information can be obtained.

A. This information is shown on Schedule 2. In addition, Schedule 3 provides historical price information for certain commodity price sources relative to the prior period fuel factor (July 1, 2019 to June 30, 2020) through January 31, 2020.

Q. Please describe any changes in market assumptions between the Company's 2019 Virginia fuel factor case and this year's filing.

A. United Brokersheet has changed the spec details on the Northern Appalachian Coal from 13000 btu/lb heating value and 4.75 lb/mmbtu SO2 content to 13000 btu/lb heating value and 4.00 lb/mmbtu SO2 content.

Additionally, RGGI CO_2 prices have been added to this year's filing.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

BACKGROUND AND QUALIFICATIONS OF ROBERT G. THOMAS

Robert G. Thomas received a Bachelor of Science degree in Mining Engineering from the University of Pittsburgh in 1981, a Master of Materials Science degree from the University of Virginia in 1988, and a Master of Business Administration from the University of Richmond in 2000.

Mr. Thomas started his career with the Company in 1981 as an Engineer in the Procurement Services Department and has held various positions in the Fuel Procurement Department, the Capacity Acquisition Department, and the Dominion Energy Clearinghouse. He has also held management positions in the Dominion Energy Clearinghouse, Business Planning and Market Analysis Department, and the Corporate Strategy Department.

Currently, Mr. Thomas is the Director, Corporate Strategy in the Corporate Strategy Department. His responsibilities include energy commodity price forecasting, Dominion Energy Virginia load and sales forecasting, and demand-side and integrated resource planning. He is also a certified Six Sigma Green Belt.

Mr. Thomas has previously presented testimony before the State Corporation Commission of Virginia.

Commodity Price Projections

February Outlook Case
Commodity Fuel and Market Price Assumptions
Market as of 1/31/2020

Year	Month	$/MMBtu NYMEX NG	$/MMBtu Zone 6 NNY Basis*	$/MMBtu Transco Zone 5 Basis*	$/MMBtu Dominion SP Basis*	$/MMBtu TCO Pool Basis*	$/bbl #6 Oil (1%S)	$/MMBtu #2 Oil	$/bbl Crude (WTI)	$/ton Coal-CAPP 1.6#	$/ton Coal-CAPP NS 1.6#	$/ton Coal-NAPP 4#
2020	May	1.95	-0.33	0.05	-0.42	-0.28	60.70	11.78	51.77	47.25	49.75	38.45
2020	June	2.02	-0.30	0.21	-0.42	-0.30	60.20	11.82	51.80	47.25	49.75	38.45
2020	July	2.09	-0.22	-0.10	-0.41	-0.31	59.75	11.87	51.74	49.25	51.00	38.75
2020	August	2.12	-0.25	-0.07	-0.44	-0.35	59.35	11.92	51.59	49.25	51.00	38.75
2020	September	2.11	-0.52	-0.11	-0.65	-0.44	59.00	11.98	51.39	49.25	51.00	38.75
2020	October	2.14	-0.51	-0.17	-0.67	-0.51	58.65	12.04	51.17	51.25	52.25	38.85
2020	November	2.25	-0.13	0.05	-0.49	-0.33	58.30	12.09	50.98	51.25	52.25	38.85
2020	December	2.44	0.57	0.69	-0.40	-0.31	57.95	12.12	50.80	51.25	52.25	38.85
2021	January	2.55	1.91	1.95	-0.37	-0.28	57.75	12.16	50.63	51.90	52.65	40.05
2021	February	2.52	1.76	1.80	-0.38	-0.27	57.55	12.17	50.48	51.90	52.65	40.05
2021	March	2.43	0.25	0.30	-0.37	-0.28	57.35	12.14	50.36	51.90	52.65	40.05
2021	April	2.21	-0.17	0.13	-0.36	-0.26	57.15	12.07	50.26	52.30	53.05	40.25
2021	May	2.19	-0.32	0.16	-0.42	-0.30	56.95	12.06	50.17	52.30	53.05	40.25
2021	June	2.23	-0.33	0.02	-0.45	-0.34	56.75	12.05	50.10	52.30	53.05	40.25

February Outlook Case
Commodity Fuel and Market Price Assumptions
Market as of 1/31/2020

		PJM Western Hub (PJM-W)			PJM-W Basis to DOM Zone			PJM DOM Zone			Emmissions		
		$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh	$/ton	$/ton NOx (SIP Call + Annual)	$/ton
Year	Month	5x16	5x8,2x24	7x24	5x16	5x8,2x24	7x24	5x16	5x8,2x24	7x24	SO_2		RGGI
2020	May	27.10	19.20	22.60	4.20	1.98	2.93	31.30	21.18	25.53	3.50	93.50	5.75
2020	June	26.05	18.95	22.42	2.70	0.97	1.81	28.75	19.92	24.24	3.50	93.50	5.75
2020	July	30.65	21.65	26.10	2.28	0.84	1.55	32.93	22.49	27.66	3.50	93.50	5.75
2020	August	28.50	19.90	23.78	1.08	0.73	0.89	29.58	20.63	24.67	3.50	93.50	5.75
2020	September	29.00	20.00	24.20	2.77	1.49	2.09	31.77	21.49	26.29	3.50	93.50	5.75
2020	October	27.25	20.35	23.61	4.84	1.81	3.25	32.09	22.16	26.86	3.50	3.50	5.75
2020	November	28.00	22.10	24.72	1.17	1.24	1.21	29.17	23.34	25.93	3.50	3.50	5.75
2020	December	30.15	25.05	27.46	1.41	1.23	1.31	31.56	26.28	28.78	3.50	3.50	5.75
2021	January	40.65	34.40	37.09	3.10	4.71	4.02	43.75	39.11	41.11	3.57	3.57	5.87
2021	February	38.30	31.85	34.92	0.55	0.86	0.71	38.85	32.71	35.63	3.57	3.57	5.87
2021	March	30.50	25.55	28.00	2.31	1.69	2.00	32.81	27.24	30.00	3.57	3.57	5.87
2021	April	27.40	21.40	24.33	1.44	0.85	1.14	28.84	22.25	25.47	3.57	3.57	5.87
2021	May	27.40	18.95	22.58	4.20	1.98	2.93	31.60	20.93	25.52	3.57	95.40	5.87
2021	June	26.30	19.20	22.67	2.70	0.98	1.82	29.00	20.18	24.49	3.57	95.40	5.87

*Basis is the price differential between Henry Hub and the specific trading point noted. The purchase price for gas at Zone 6 NNY, for example, is equal to Henry Hub NG + Zone 6NNY Basis.

Commodity Price Data Sources

a. Natural Gas

Source: New York Mercantile Exchange (NYMEX) Clearport
Product: Natural Gas
Trade Symbol: NG
Delivery Point: Henry Hub, Louisiana
Contract Size: 10,000 MMBtu (million British thermal units)
Additional Information: www.cmegroup.com

b. Natural Gas Basis

Source: Intercontinental Exchange
Products: Transco Zone 6NNY, Dominion South Point, TCO Pool Basis
Trade Symbol:
Delivery Point: Financial only
Contract Size:
Additional Information: www.theice.com

Source: Platts
Product: Transco Zone 5
Trade Symbol: N/A
Delivery Point: Transco Zone 5
Contract Size: N/A
Additional Information: www.platts.com/products/m2ms-gas

c. Crude Oil (WTI)

Source: New York Mercantile Exchange (NYMEX) Clearport
Product: Light Sweet Crude Oil
Trade Symbol: CL
Delivery Point: Cushing, Oklahoma
Contract Size: 1,000 barrels (42,000 gallons)
Additional Information: www.cmegroup.com

d. #2 Fuel Oil

Source: New York Mercantile Exchange (NYMEX) Clearport
Product: Ultra-Low Sulfur Diesel
Trade Symbol: LH
Delivery Point: New York Harbor
Contract Size: 1,000 barrels (42,000 gallons)
Additional Information: www.cmegroup.com

e. #6 Fuel Oil

Source: Starfuels, Inc.
Product: Residual Fuel Oil, 1% Sulfur
Trade Symbol: N/A
Delivery Point: New York Harbor
Contract Size: 1,000 barrels (42,000 gallons)
Additional Information: www.starfuels.com

f. Coal – CSX (CSX Corp.), Central Appalachia

Source: United Power (division of ICAP United, Inc.)
Product: Coal - 12,500 Btu/lb, 1.6 lb/MMBtu SO_2
Trade Symbol: N/A
Delivery Point: Central Appalachia via CSX (Big Sandy River or Kanawha River)
Contract Size: 10,000 short tons (approximate size of one train)
Additional Information: www.icapenergy.com/US/markets/coal.aspx

g. Coal – NS (Norfolk Southern), Central Appalachia

Source: United Power (division of ICAP United, Inc.)
Product: Coal - 12,500 Btu/lb, 1.6 lb/MMBtu SO_2
Trade Symbol: N/A
Delivery Point: Central Appalachia via NS (Thacker or Kenova)
Contract Size: 10,000 short tons (approximate size of one train)
Additional Information: www.icapenergy.com/US/markets/coal.aspx

h. Coal – MGA (Monongahela Railway), Northern Appalachia

Source: United Power (division of ICAP United, Inc.)
Product: Coal - 13,000 Btu/lb, 4.00 lb/MMBtu SO_2
Trade Symbol: N/A
Delivery Point: Northern Appalachia via MGA
Contract Size: 10,000 short tons (approximate size of one train)
Additional Information: www.icapenergy.com/US/markets/coal.aspx

i. SO_2 Allowances

Source: Evolution Markets, Inc.
Trade Symbol: N/A
Delivery Point: United States (nationwide)
Quoted Units: $/ton of SO_2 emitted
Additional Information: http://new.evomarkets.com/index.php?page=Emissions_Markets

Commodity Price Data Sources

j. NO_x Allowances (Seasonal and Annual)

Source: Evolution Markets, Inc.
Trade Symbol: N/A
Delivery Point: United States (SIP Call region)
Quoted Units: $/ton of NOx emitted
Additional Information: http://new.evomarkets.com/index.php?page=Emissions_Markets

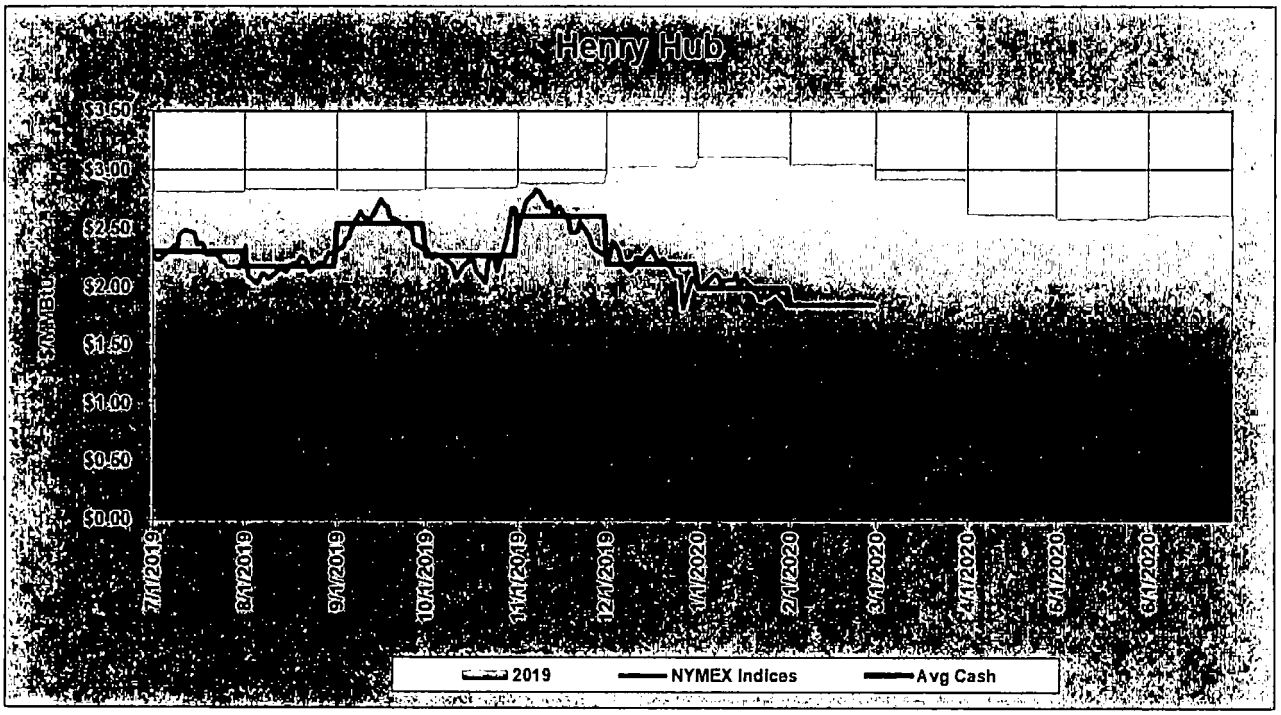
k. CO_2 Allowances (RGGI)

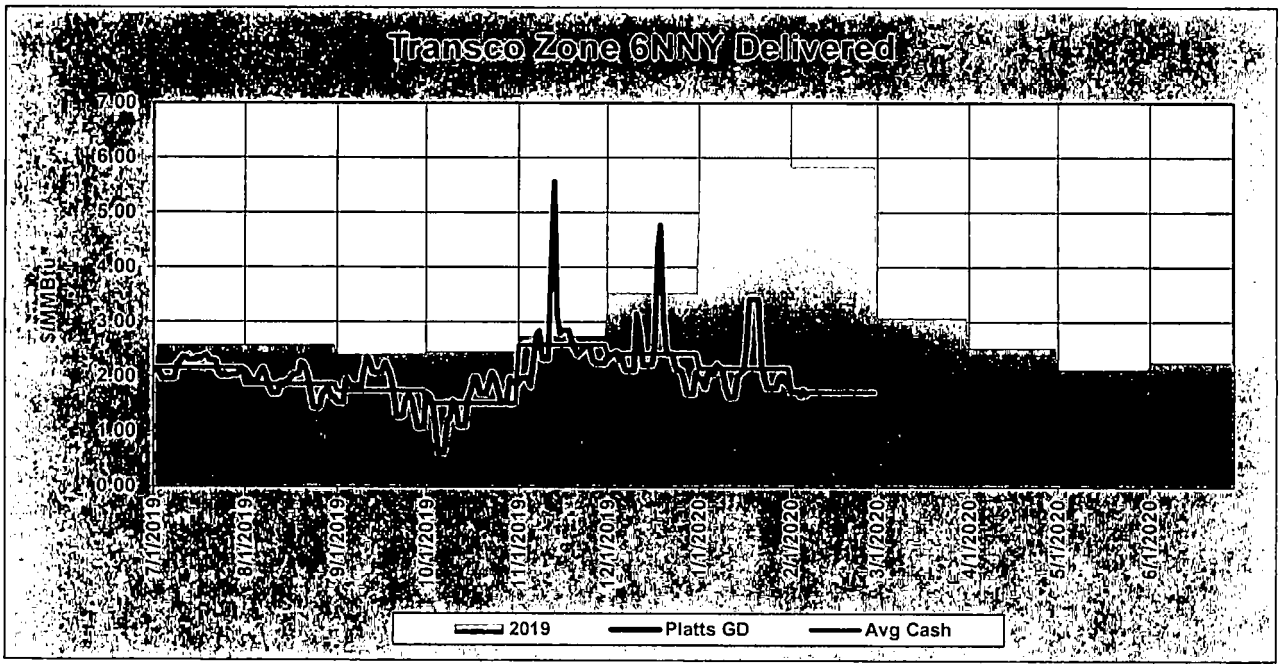
Source: Evolution Markets, Inc.
Trade Symbol: N/A
Delivery Point: United States
Quoted Units: $/ton of CO_2 emitted
Additional Information: http://new.evomarkets.com/index.php?page=Emissions_Markets

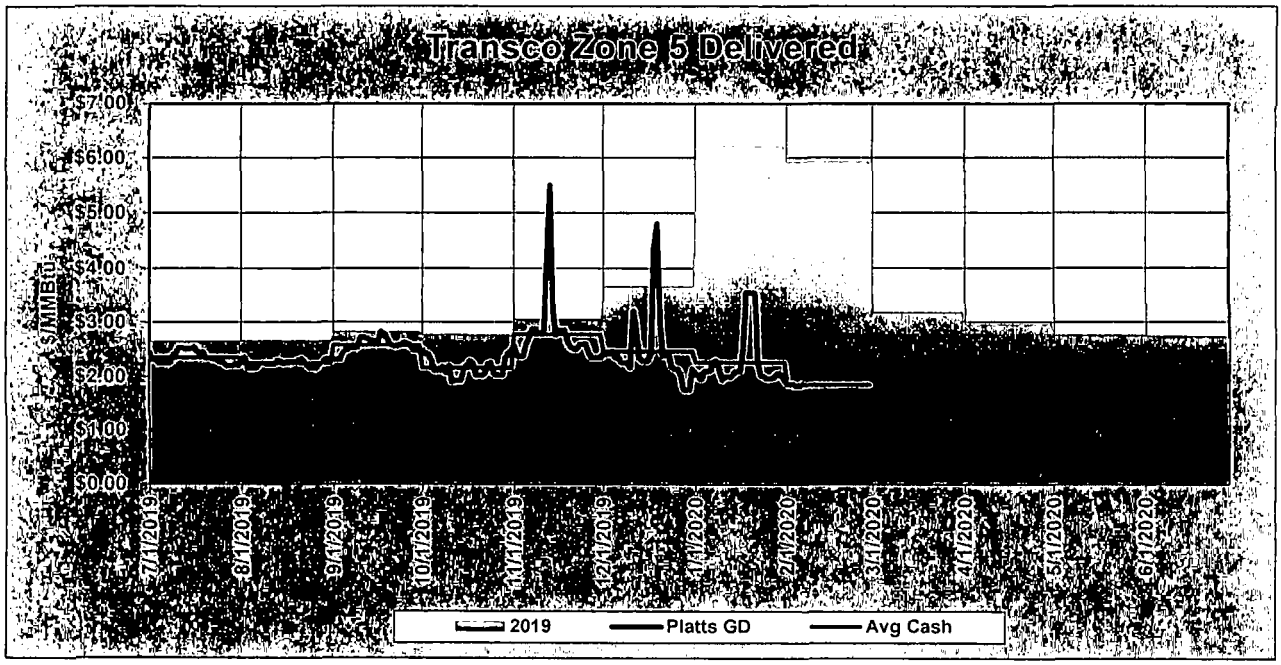
l. PJM-W Power Prices

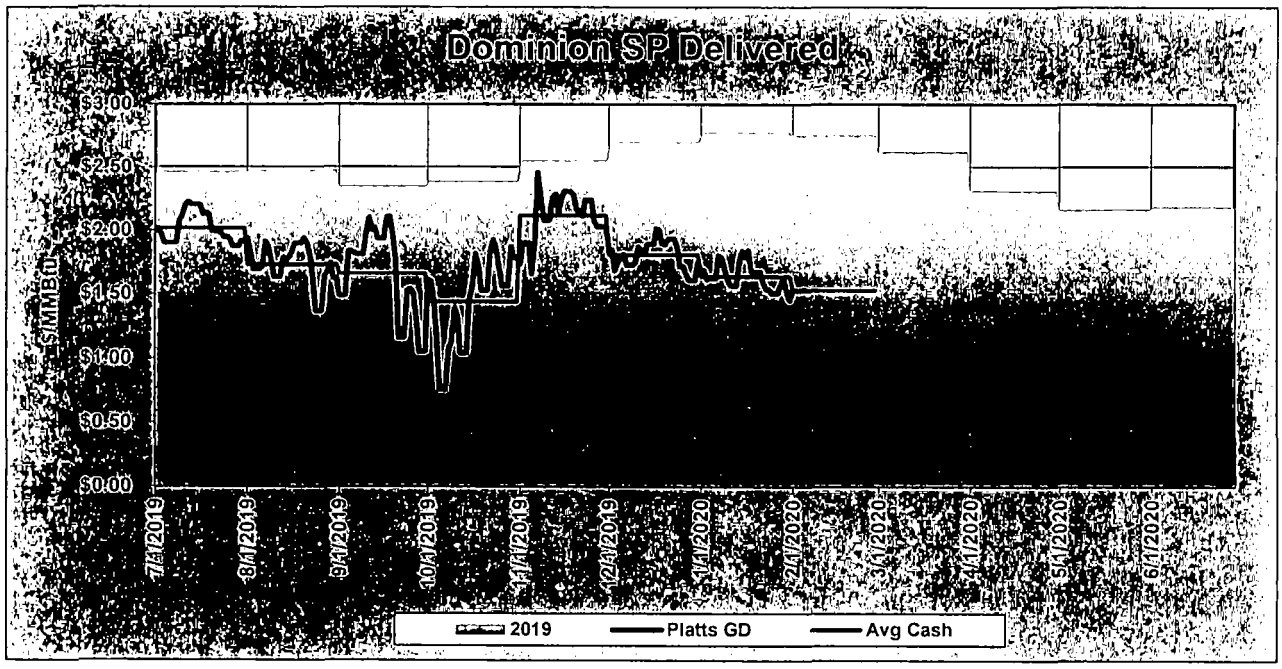
Source: Intercontinental Exchange
Product: On-peak, Off-peak Power
Trade Symbol: N/A
Delivery Point: PJM Western Hub
Contract Size: 50 MW
Additional Information: www.theice.com/homepage.jhtml

Historical Commodity Prices






Transco Zone 5 Delivered
$/MMBtu
$7.00
$6.00
$5.00
$4.00
$3.00
$2.00
$1.00
$0.00
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
2019
Platts GD
Avg Cash


Dominion SP Delivered
$/MMBtu
$3.00
$2.50
$2.00
$1.50
$1.00
$0.50
$0.00
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
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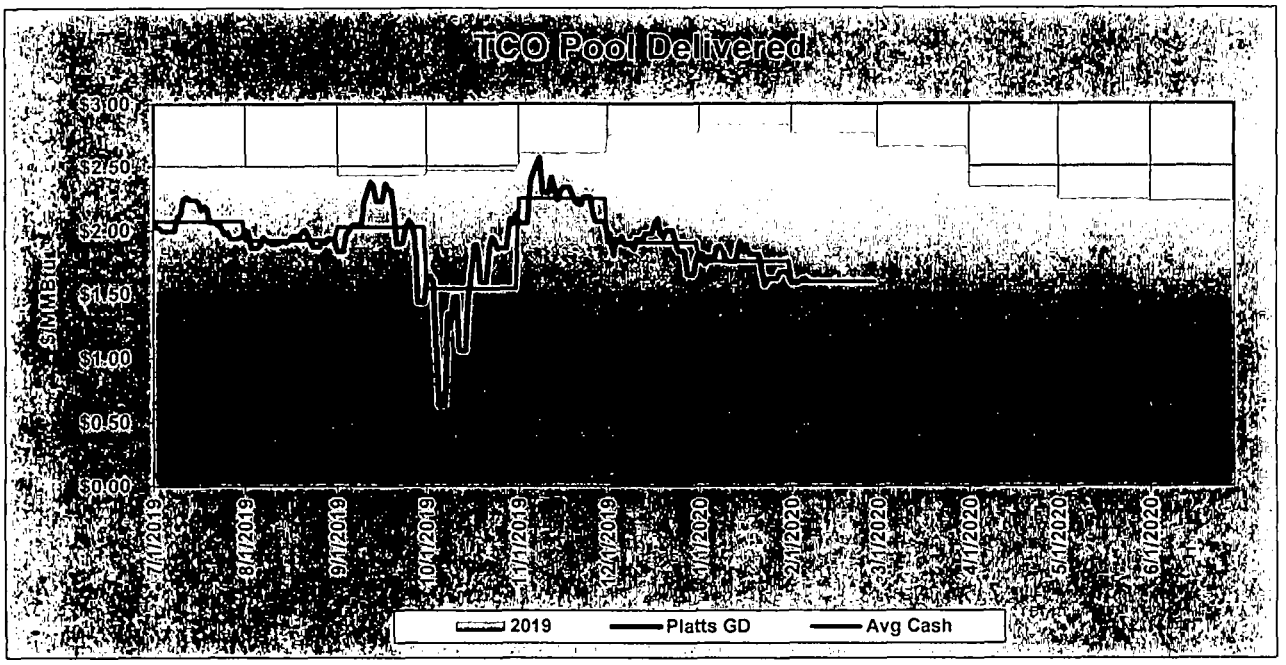
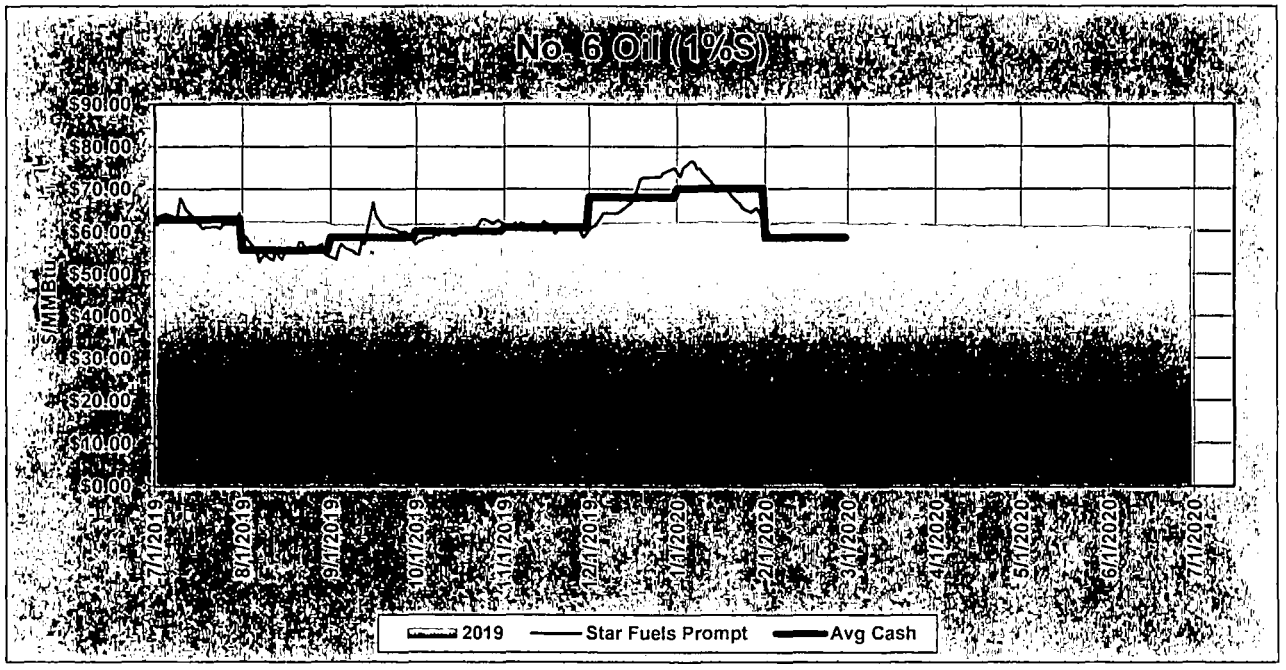
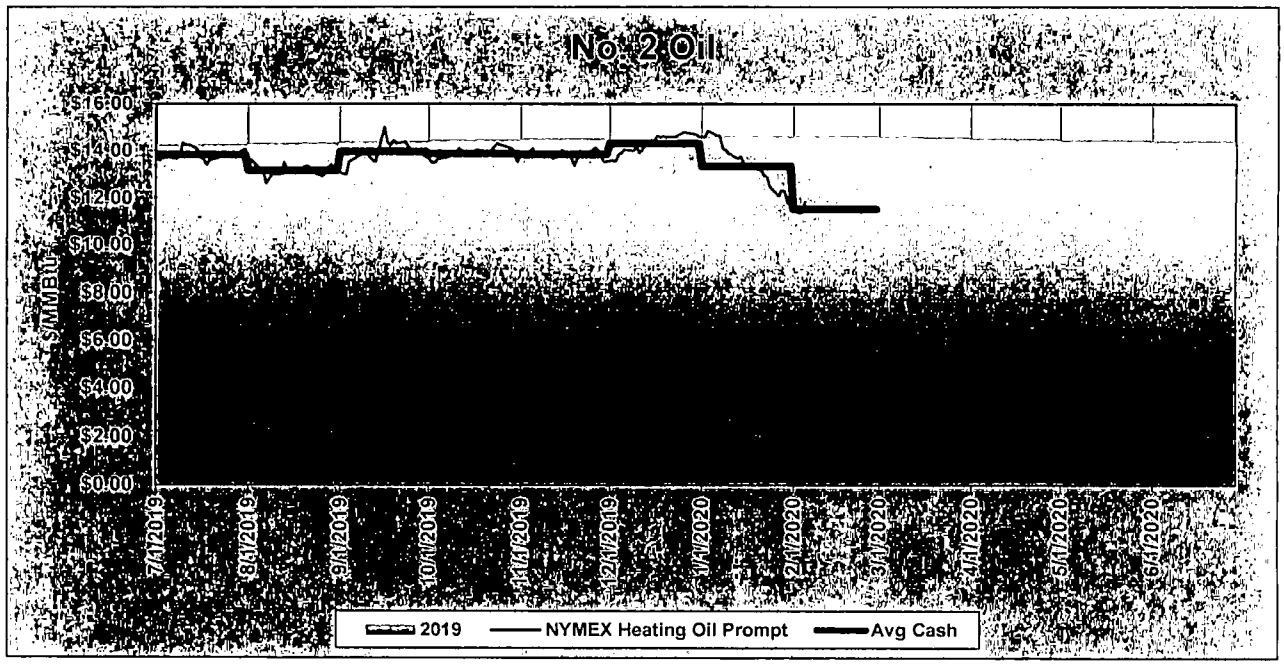
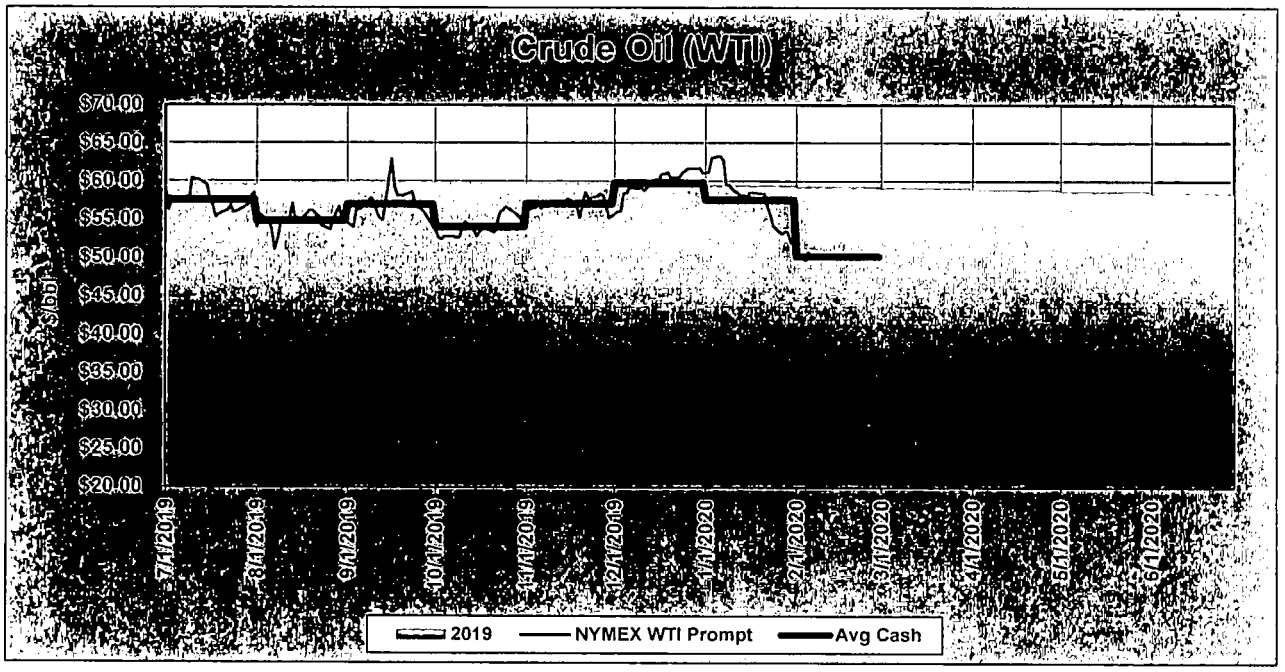
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
2019
Platts GD
Avg Cash


TCO Pool Delivered
$/MMBtu
$3.00
$2.50
$2.00
$1.50
$1.00
$0.50
$0.00
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
2019
Platts GD
Avg Cash


No. 6 Oil (1%S)
$/MMBtu
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$0.00
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
7/1/2020
2019
Star Fuels Prompt
Avg Cash


No. 2 Oil
$/MMBtu
$16.00
$14.00
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$0.00
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
2019
NYMEX Heating Oil Prompt
Avg Cash


Crude Oil (WTI)
$/bbl
$70.00
$65.00
$60.00
$55.00
$50.00
$45.00
$40.00
$35.00
$30.00
$25.00
$20.00
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
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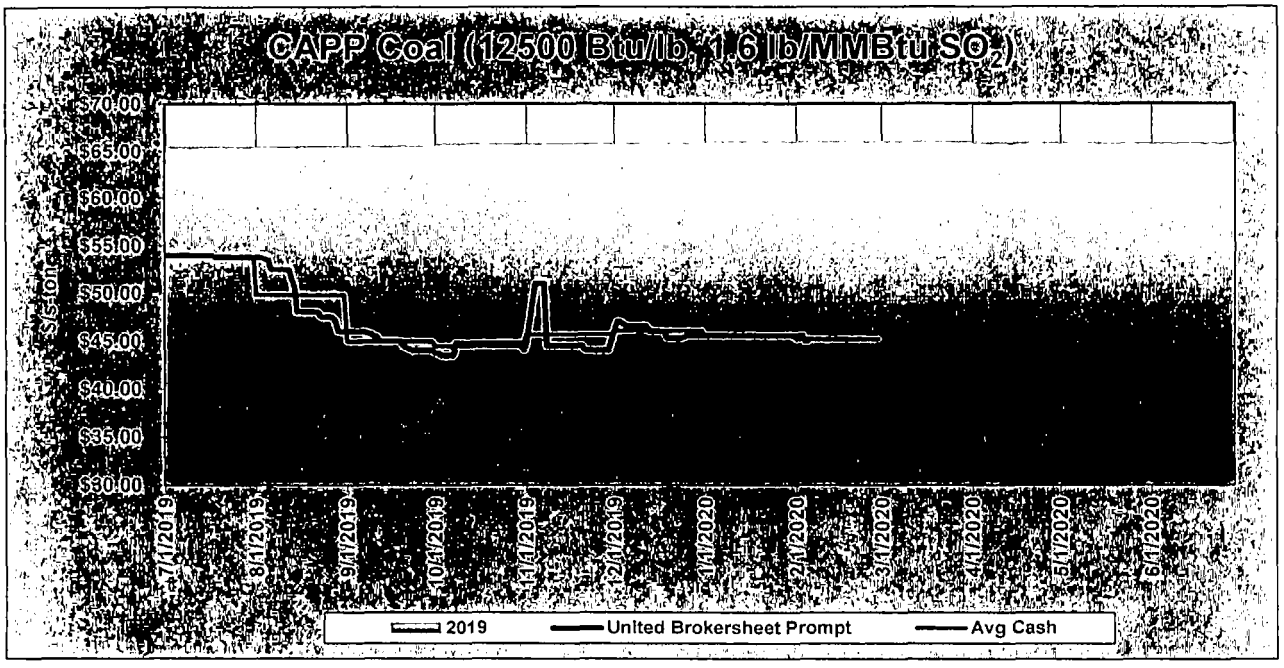
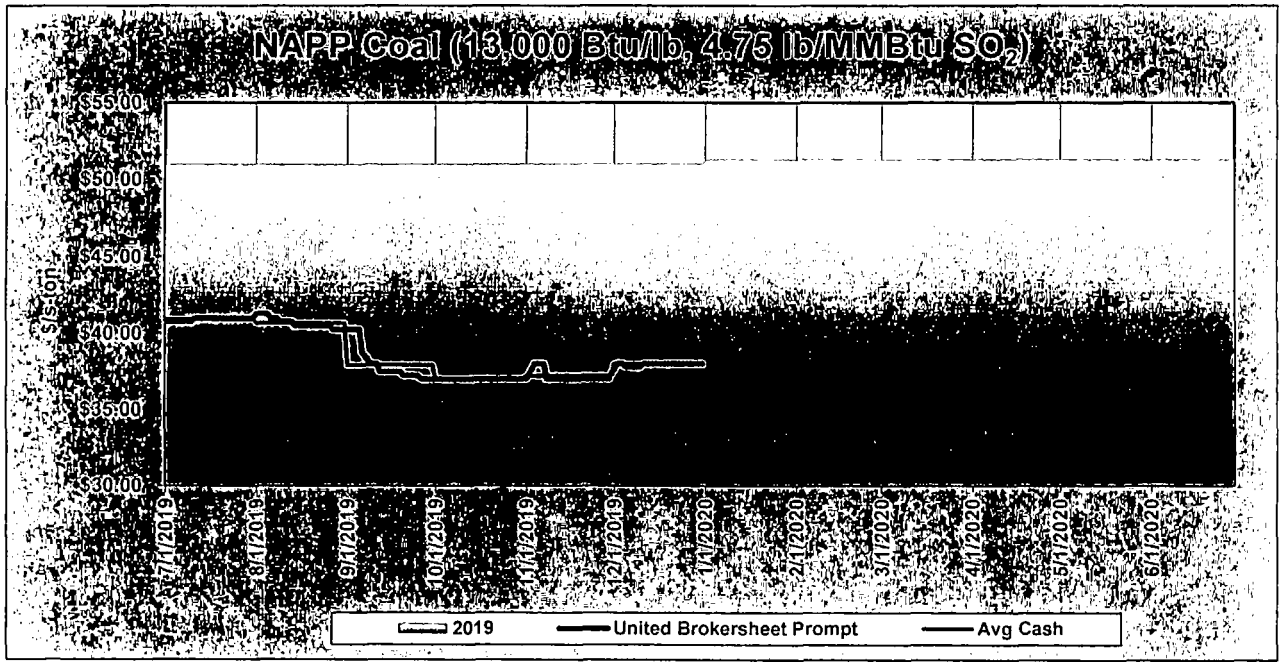
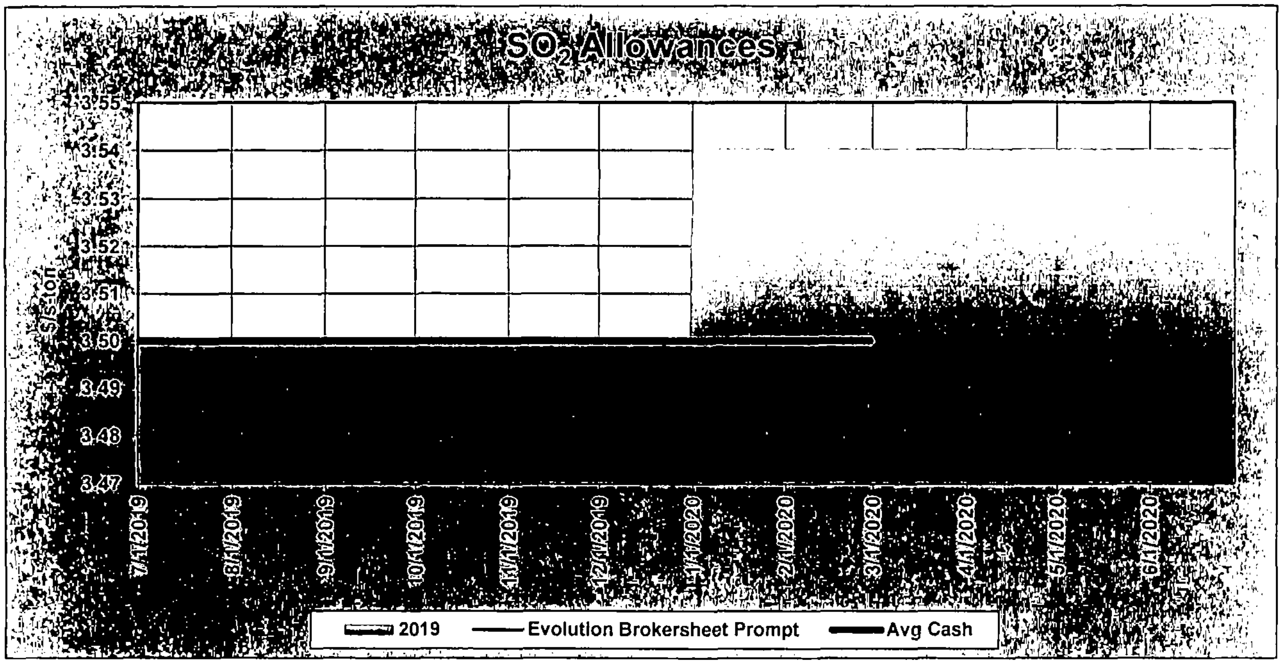
6/1/2020
2019
NYMEX WTI Prompt
Avg Cash


CAPP Coal (12500 Btu/lb, 1.6 lb/MMBtu SO2)
$/Short Ton
$70.00
$65.00
$60.00
$55.00
$50.00
$45.00
$40.00
$35.00
$30.00
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
2019
United Brokersheet Prompt
Avg Cash


NAPP Coal (13,000 Btu/lb, 4.75 lb/MMBtu SO2)
$/Short Ton
$55.00
$50.00
$45.00
$40.00
$35.00
$30.00
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
2019
United Brokersheet Prompt
Avg Cash


SO2 Allowances
3.55
3.54
3.53
3.52
3.51
3.50
3.49
3.48
3.47
$/s-ton
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
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3/1/2020
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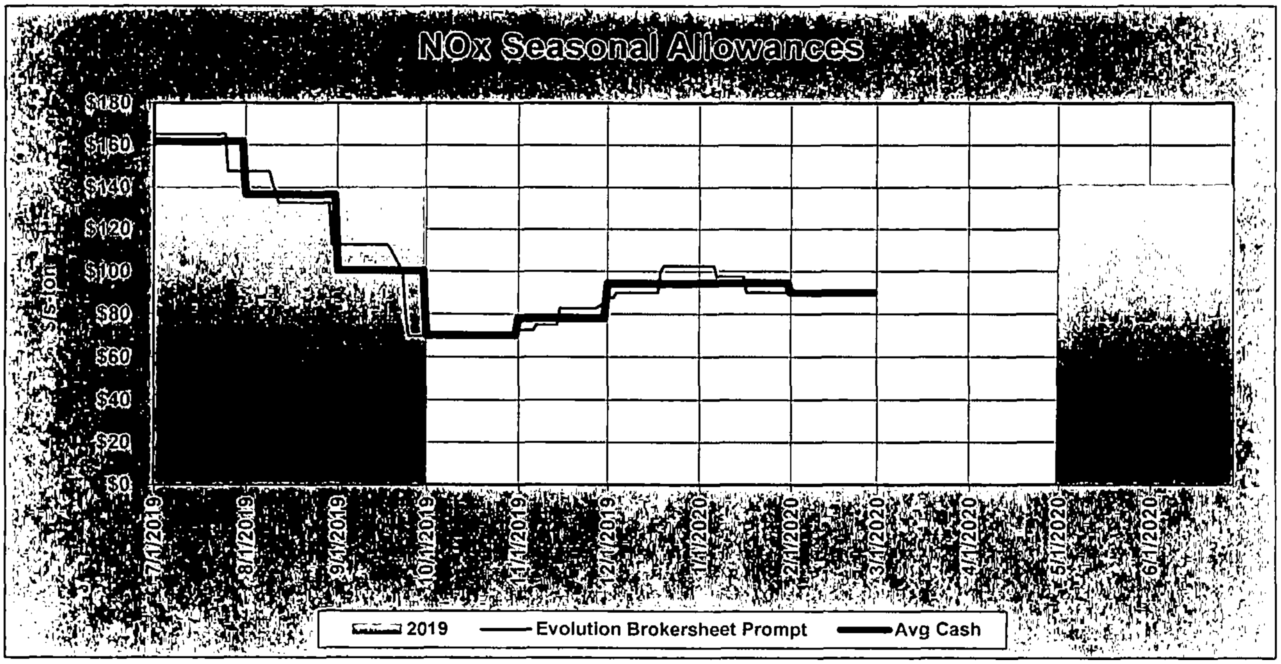
6/1/2020
2019
Evolution Brokersheet Prompt
Avg Cash


NOx Seasonal Allowances
$180
$160
$140
$120
$100
$80
$60
$40
$20
$0
$/s-ton
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
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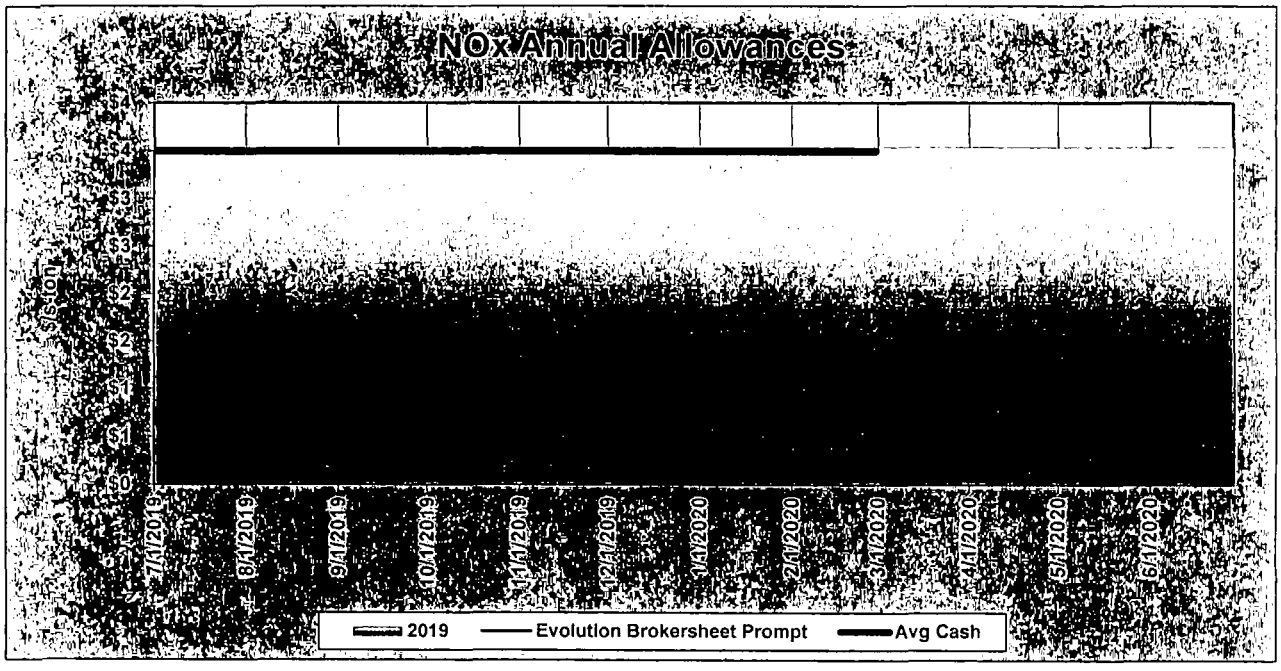
3/1/2020
4/1/2020
5/1/2020
6/1/2020
2019
Evolution Brokersheet Prompt
Avg Cash


NOx Annual Allowances
$/Ton
$4
$3
$2
$1
$0
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
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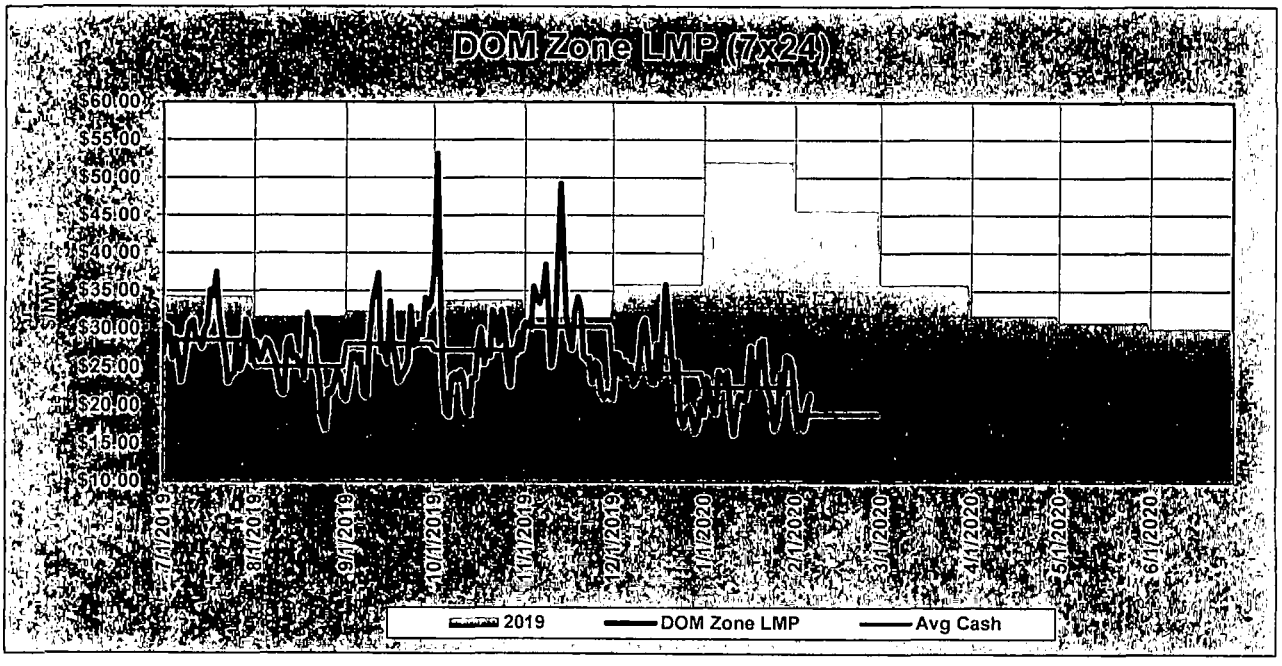
3/1/2020
4/1/2020
5/1/2020
6/1/2020
2019
Evolution Brokersheet Prompt
Avg Cash


DOM Zone LMP (7x24)
$/MWh
$60.00
$55.00
$50.00
$45.00
$40.00
$35.00
$30.00
$25.00
$20.00
$15.00
$10.00
7/1/2019
8/1/2019
9/1/2019
10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
2019
DOM Zone LMP
Avg Cash

WITNESS DIRECT TESTIMONY SUMMARY
CASE NO. PUR-2020-00031

Witness: Katherine E. Farmer

Title: Senior Financial Analyst Specialist – Generation System Planning

Company Witness Katherine E. Farmer reviews the methodology and models that the Company used to project total system energy requirements and fuel expenses from July 1, 2020 through June 30, 2021 (the "current period"). In addition, Ms. Farmer describes the load forecast, unit operating parameters, and electric market interface assumptions used to develop these projections. As Ms. Farmer testifies, the Company's projected system fuel and purchased power expenses for the current period is $1.6 billion. Ms. Farmer explains that the primary driver for the decrease in the system fuel expense is the commodity price forecast. Ms. Farmer testifies that the forecasted prices are significantly lower than the forecast for the prior fuel case, especially natural gas and power.

Ms. Farmer presents the Company's actual energy requirements and fuel expenses for the twelve-month historical period of February 1, 2019 through January 31, 2020, as required by Rule 80 of the Commission's Rules Governing Utility Rate Applications and Annual Informational Filings, 20 VAC 5-201-80.

Lastly, Ms. Farmer addresses the Company's fuel recovery position for the prior period. The Company's year-end fuel recovery through June 30, 2020 is expected to be an over-recovery of approximately $80.7 million. Actual commodity prices were much lower than those expected during the prior period. Overall, the natural gas, coal, and power prices were lower than the forecast with a few minor weather-related spikes.

DIRECT TESTIMONY
OF
KATHERINE E. FARMER
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00031

Q. Please state your name, business address, and position of employment.

A. My name is Katherine E. Farmer, and my business address is 600 E. Canal Street, Richmond, Virginia 23219. I am in the Generation System Planning Department of Virginia Electric and Power Company (the "Company"). I am responsible for forecasting total system fuel and purchased power expenses. A statement of my background and qualifications is attached as Appendix A.

Q. What is the purpose of your testimony in this proceeding?

A. I will review the methodology and models that the Company used to project total system energy requirements and fuel expenses from July 1, 2020 through June 30, 2021 (the "current period"). In doing so, I will also describe the load forecast, unit operating parameters, and electric market interface assumptions used to develop these projections. In addition, I will discuss the Company's actual energy requirements and fuel expenses for the twelve-month historical period of February 1, 2019 through January 31, 2020, as required by Rule 80 of the Commission's Rules Governing Utility Rate Applications and Annual Informational Filings, 20 VAC 5-201-80.

Q. During the course of your testimony, will you introduce an exhibit?

A. Yes. Company Exhibit No. ___, KEF, consisting of Schedules 1 through 15 (some of which are confidential as noted in my testimony), was prepared under my supervision and

direction, and is accurate and complete to the best of my knowledge and belief.

Q. Please describe the Company's process for projecting total system energy requirements and fuel expenses for the current period.

A. Projected system energy and fuel expenses are developed through a four-phase planning process that simulates the expected economic dispatch of the Company's system. First, the Company develops a load forecast (retail and wholesale) for its entire service territory. Second, the Nuclear and Power Generation groups provide projections of the generating unit operational parameters, including unit capacities, heat rates, planned outages, and forced outage rates. The Power Contracts Department also provides the contract parameters for non-utility generators ("NUGs") under contract with the Company. Third, the Business Planning & Market Analysis Department provides the commodity and power price forecasts, while the Fuels Department provides the fuel contracts and associated transportation arrangements. Finally, the data is compiled into models that provide a simulation of the Company's system dispatch. The result of this simulation is a projection of the system fuel expense, which the Rates Department then uses to develop the Company's Virginia jurisdictional fuel factor rate.

Q. What models were used to develop the energy and fuel expense projections?

A. The Company utilizes the FuelPlan and PLEXOS® models to calculate expected fuel expense.

Q. What is the FuelPlan model?

A. The FuelPlan model is a computer-based model that consists of two different modules—the dispatch module and the expense module. The dispatch module develops the unit

dispatch rates (in cents per million British thermal unit ("¢/MMBtu")) that are used by PLEXOS to simulate the economic dispatch of the Company's generating units. The expense module develops the unit expense rates that are used in PLEXOS to calculate the cost of the units' projected generation based on the weighted average value of the fuel inventory at each unit (which changes over time due to the monthly fuel deliveries and consumption at the Company's stations).

Q. How are unit dispatch rates developed?

A. The dispatch module of FuelPlan utilizes the forward commodity price forecast, which is described by Company Witness Robert G. Thomas, along with a transportation adder for each unit to develop a unit dispatch rate. This dispatch rate reflects the marginal or replacement delivered fuel cost of the incremental generation from a particular unit. The unit dispatch rates (in ¢/MMBtu) are passed to the PLEXOS model as inputs for the Company's system to simulate the economic dispatch to meet the Company's projected load requirements. The PLEXOS model is run using the unit dispatch rates, and the resulting unit Btu requirements are then passed back from PLEXOS to FuelPlan to develop the unit expense rates.

Q. How are unit expense rates developed?

A. The expense module of FuelPlan develops a projection of the monthly average inventory cost for each generating unit. The model downloads the beginning inventory cost for each unit from the Company's accounting system, and calculates a forecasted monthly average inventory cost based on beginning inventory cost and the cost of the projected fuel deliveries. For example, for the Company's coal units, the model incorporates both contract and spot market purchases based on the projected Btu requirements, which

results in an average of spot and contract delivered prices weighted by tons.

Q. What is the PLEXOS® model?

A. PLEXOS is economic software by Energy Exemplar that uses mathematics-based optimization techniques for forecasting. It is a utility production cost and capacity resource modeling software that the Company uses to forecast its system operations and fuel costs. The model utilizes the dispatch rates developed in FuelPlan along with system constraints and forward power price curve to simulate the dispatch of the Company's system to meet projected load requirements. The model logic dispatches resources in least-cost order (from either the Company's generating units or energy purchases through PJM Interconnection, L.L.C. ("PJM")) to meet the Company's total demand requirements. The PLEXOS dispatch logic takes into account the operational parameters of the generating units and the Company's NUG contracts when determining the least cost solution.

Q. How are the respective units' dispatch costs determined in PLEXOS?

A. Unit dispatch cost is based on the marginal or replacement energy cost specific to the unit. The energy cost components include the marginal fuel expense (the unit dispatch rate from the FuelPlan model), the marginal allowance expense for sulfur dioxide ("SO_2"), carbon dioxide ("CO_2"), and nitrogen oxide ("NO_x") emissions, and the variable operations and maintenance ("O&M") expense. The marginal allowance expense is based on a unit's SO_2, CO_2 and NO_x emission rates (in pound ("lbs") per MMBtu) and the market value or replacement cost of allowances (in dollars per ton). The variable O&M expense component includes both consumables (water, limestone, ammonia, *etc.*) and the variable portion of maintenance expense.

The dollar per megawatt-hour ("MWh") dispatch cost of the unit is developed by multiplying the delivered fuel cost (in $/MMBtu) times the unit heat rate (in MMBtu/MWh), and then adding the $/MWh costs of emissions adders and variable O&M. These unit dispatch costs are calculated by the model to determine the total variable cost of dispatching the unit (in $/MWh) at various levels of output, including the impact of start-up costs and environmental regulations.

I. CURRENT PERIOD DISCUSSION

Q. What kilowatt-hour ("kWh") sales forecast is used to develop the projected load requirements?

A. Schedule 1 shows the Company's total energy requirement at the generator output level, and the sales forecast for both total system and Virginia jurisdictional customers for the current period. The effects of energy efficiency and demand-side management programs are included in the system sales forecast.

Q. How have forward commodity prices changed since the Company's fuel factor filing last year in Case No. PUR-2019-00070 (the "2019 Fuel Factor Case")?

A. As the table below demonstrates, coal, natural gas, and purchased power prices have decreased since last year's fuel filing.

FORWARD PRICES

COMMODITY	3/28/2019 JULY 19-JUNE 20	1/31/2020 JULY 20-JUNE 21	
Coal (CAPP-FOB) ($/ton)	65.76	51.18	-22%
Oil (Crude-WTI) ($/bbl)	59.36	50.81	-14%
Gas (Henry Hub) ($/mmbtu)	2.85	2.27	-20%
Gas (Zone 5) ($/mmbtu)	3.46	2.66	-23%
Gas (Z6NNY) ($/mmbtu)	3.18	2.44	-23%
Power (7 x 24 West Hub) ($/MWh)	33.43	26.65	-20%
Nuclear (expense basis) ($/MWh)	6.16	6.14	-0%

Q. What is the Company's projection of system fuel and purchased power expenses for the current period?

A. The Company's projected system fuel expense for the current period is $1.6 billion. Schedule 2 shows supply volumes (MWh), supply costs ($000), and average cost ($/MWh) by supply type for the current period. The total monthly system energy and fuel expense on my Schedule 2 is included in Company Exhibit No. ___, Schedule 1, sponsored by Company Witness George G. Beasley, to determine the Company's Virginia jurisdictional fuel expense.

Q. The Company's projected system fuel expense is lower than that in the 2019 Fuel Factor Case. What are the drivers for this decrease?

A. As I will discuss later in my testimony, the primary driver to the decrease in the system fuel expense is the commodity price forecast. The forecasted prices are significantly lower than the forecast for the prior fuel case, especially natural gas and power.

Q. What unit operating assumptions and results are included in this filing?

A. Confidential Schedule 3 provides the projected equivalent availability rates, confidential planned outage dates, and capacity factors by generating unit (for non-peaking units) for

the current period. Confidential Schedule 4 shows the projected monthly unit equivalent forced outage rates.

Q. How does PLEXOS account for the Company's participation in PJM?

A. PLEXOS dispatches the Company's generating units against an hourly market price that is reflective of the PJM Dominion Energy Zone price. Company Witness Thomas discusses this forecast in greater detail. In the model, the Company's system is interconnected with the PJM energy market. For economy energy purchases, if the market price of energy is lower than the Company's cost to generate, then imports will occur until the marginal cost of the last unit dispatched equals the market price of energy (with the imports not allowed to exceed the transmission tie limit). For off-system sales, if the market price of energy is higher than our cost to generate, then exports will occur until the marginal cost of the last unit dispatched equals the market price of energy (with the exports not allowed to exceed the transmission tie limit).

Q. Are there any off-system sales included in this filing for the current period?

A. The Company is projecting that it will sell 256,530 MWh, with an associated sales margin of $0.6 million, for the current period. Therefore, $0.4 million for energy sales margins is reflected as a reduction to the system fuel expense pursuant to the statutory 75%-25% sharing mechanism of such margins under Va. Code § 56-249.6 D 1. Schedule 5 shows the expected off-system sales margins by month. The total reduction to the system fuel expense from off-system sales is approximately $14.8 million. These values are also included in the system total fuel expense shown on Schedule 2.

Q. Does the Company's system fuel expense include the impacts of financial transmission rights ("FTRs")?

A. Yes. Schedule 2, page 2 of 3, shows an expense of approximately $10 million, which reflects a 100% credit of excess FTRs as previously agreed by the Company in prior Virginia fuel factor cases.

Q. Are interim nuclear spent fuel storage costs reflected in total system fuel expense?

A. Yes. System nuclear fuel expense includes interim spent fuel storage costs of approximately $2.4 million. This expense does not include the security labor as ordered by the Commission in the 2018 fuel factor case.

Q. What is the status of the Company's recovery from the U.S. Department of Energy ("DOE") for spent nuclear fuel storage mentioned in the 2018 Fuel Factor Case?

A. In its 2018 Fuel Factor Case, the Company included approximately $11.9 million on a Virginia jurisdictional fuel basis of expected settlement payments as a reduction to projected system fuel expense. The portion of the settlement not associated with security labor will be credited to fuel expense. For the upcoming current period, the Company is not including a projected settlement payment.

Q. Are natural gas storage and pipeline firm transportation expenses reflected in total system fuel expense?

A. Yes. System gas fuel expense includes natural gas storage and pipeline transportation expenses and contract costs. For the current period, these projected firm gas expenses are approximately $177.1 million. This includes the estimated impact of the projected sales of excess firm pipeline transportation capacity.

Q. Do you have any other schedules relating to the current period?

A. Yes. Confidential Schedule 6 shows the forecasted fuel consumption (in MMBtu), by month and by unit. Confidential Schedule 7 shows the forecasted heat rates for the thermal generating units, also by month and by unit. Finally, Schedule 8 shows the projected fuel cost information for February 2020 to June 2020—*i.e.*, the remainder of the prior period (July 1, 2019 to June 30, 2020)—for which there are not yet actual results.

Q. Please describe any capacity changes during the prior period or the current period.

A. During the prior period, the Colonial Trail West Solar Facility, an approximately 142 MW (nominal alternating current ("AC")) facility located in Surry County, was placed in service December 2019. In addition, approximately 49 MW AC solar NUGs have been placed in service during the prior period.

During the current period, the Spring Grove 1 Solar Facility, an approximately 98 MW AC facility also located in Surry County, is expected to be in service by October 2020. In addition, the Sadler Solar Facility, an approximately 100 MW AC facility located in Greensville County, is expected to be in service by December 2020.

Q. Did you model RGGI in the current fuel case?

A. Yes. Starting January 1, 2021, the forecast assumes that Virginia joins the Regional Greenhouse Gas Initiative ("RGGI"). The emissions rates affect the dispatch generation, but the emission expenses will not be charged to fuel expense.

II. HISTORICAL PERIOD DISCUSSION

Q. What were the Company's monthly energy requirements and sales volumes for the most recent 12-month historical period?

A. System energy requirements and sales volumes for that period are shown on Schedule 9, which provides data for the period February 2019 to January 2020.

Q. Please explain the Company's fuel expense for the historical period.

A. Schedule 10 shows a system level monthly summary of the actual supply volumes (MWh), supply costs ($000), and average cost ($/MWh) by supply type for the period February 2019 to January 2020.

Q. Please explain the Company's fuel recovery position for the prior period.

A. As shown by Company Witness Beasley, the year-end fuel recovery through June 30, 2020 is expected to be an over-recovery of approximately $80.7 million.

Q. What are the main factors that contributed to the fuel expense recovery position during the prior period?

A. The actual market commodity prices were much lower than those expected during the prior period (July 1, 2019 to June 30, 2020). Overall, the natural gas, coal, and power prices were lower than the forecast with a few minor weather-related spikes. Since natural gas makes up over 40% of the generation mix, the lower natural gas prices were the main driver to the over-recovery. The June 30, 2020 total deferral balance is forecasted to be an under-recovery of $80.7 million. The actual changes in these commodity prices are shown in the table below.

COMMODITY	3/28/2019 JULY 19-JUNE 20	Actual FEB 19-JAN 20	
Coal (CAPP-FOB) ($/ton)	65.76	54.04	-18%
Oil (Crude-WTI) ($/bbl)	59.36	57.53	-3%
Gas (Henry Hub) ($/MMbtu)	2.85	2.43	-15%
Gas (Zone 5) ($/MMbtu)	3.46	2.51	-28%
Gas (Z6NNY) ($/MMbtu)	3.18	2.23	-30%
Power (7 x 24 West Hub) ($/MWh)	33.43	32.78	-3%

Q. Do you have any other schedules relating to the historical period?

A. Yes. Confidential Schedule 11 shows unit availability information, planned outage dates, and capacity factors of the thermal generating units over the historical period. Confidential Schedule 12 shows the actual fuel (in MMBtu) consumed by month and by unit, and Confidential Schedule 13 shows monthly unit equivalent forced outage rates. Confidential Schedule 14 shows monthly unit heat rates, while Confidential Schedule 15 contains information about abnormal operating events that occurred during the historical period.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

BACKGROUND AND QUALIFICATIONS OF KATHERINE E. FARMER

Katherine E. Farmer joined Dominion Energy in Distribution Engineering and has held multiple individual and management roles in Distribution, Electric Transmission, Telecommunications, Risk Management and Generation System Planning. She graduated from the College of William and Mary with a Bachelor of Science degree and earned her MBA from the University of Richmond.

Her responsibilities include forecasting the Company's system energy supply mix, and total system fuel and purchased power expenses. This includes fuel expense and variance reporting and analytical support for Dominion Energy Virginia's regulated generation.

Mrs. Farmer has previously submitted testimony before the State Corporation Commission of Virginia and the North Carolina Utilities Commission.

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VIRGINIA ELECTRIC AND POWER COMPANY
JULY 2020 - JUNE 2021
LOAD AND SALES FORECAST (MWH)

	System Energy Requirement	Total System Sales	Virginia Jurisdictional Sales
Jul-20	8,269,640	8,179,636	6,382,429
Aug-20	7,999,160	7,900,132	6,237,672
Sep-20	6,815,000	6,716,073	5,223,506
Oct-20	6,236,170	6,141,547	4,741,096
Nov-20	6,626,080	6,520,269	5,125,939
Dec-20	7,611,180	7,522,630	6,028,643
Jan-21	8,258,420	8,049,098	6,463,440
Feb-21	7,242,180	7,098,512	5,716,785
Mar-21	6,983,140	6,775,197	5,340,418
Apr-21	6,037,600	5,907,653	4,529,783
May-21	6,571,240	6,488,023	5,036,339
Jun-21	7,466,180	7,338,900	5,743,200
Total	86,115,990	84,637,671	66,569,249

VIRGINIA ELECTRIC AND POWER COMPANY
JULY 2020 - JUNE 2021

FORECASTED SYSTEM ENERGY (MWH)

	Nuclear	Coal	Biomass	Heavy Oil	Combined Cycle	Combustion Turbine	Hydro & Bath Co.	Wind	Solar	NUG	Purchases	Power Sales	FTRs	Total
Jul-20	2,410,940	806,700	72,920	-	4,205,160	236,880	(15,790)	-	204,050	131,770	237,840	(20,830)		8,269,640
Aug-20	2,431,050	638,440	63,130	101,200	4,217,910	87,580	(61,430)	-	192,850	131,770	208,540	(11,880)		7,999,160
Sep-20	2,030,330	391,400	63,520	-	3,332,810	285,530	(20,920)	-	175,960	127,520	428,850	-		6,815,000
Oct-20	2,329,480	94,100	47,940	-	3,067,810	290,760	(30,970)	-	156,630	131,770	148,650	-		6,236,170
Nov-20	2,443,690	624,560	78,230	-	1,953,800	187,690	7,640	-	114,460	127,520	1,103,910	(15,420)		6,626,080
Dec-20	2,547,930	613,280	92,970	-	3,852,800	12,430	44,680	-	115,510	131,770	275,660	(75,850)		7,611,180
Jan-21	2,569,060	1,649,920	102,100	-	3,089,580	39,880	(11,070)	4,260	156,940	131,770	593,880	(67,900)		8,258,420
Feb-21	2,234,770	1,446,990	93,740	-	2,851,260	25,670	85,220	4,580	179,110	119,020	205,870	(4,050)		7,242,180
Mar-21	2,172,750	646,550	88,890	-	3,596,980	13,240	(12,780)	4,130	232,430	131,770	165,670	(56,490)		6,983,140
Apr-21	1,968,550	366,440	72,200	101,700	1,304,120	178,520	42,570	4,260	244,260	127,520	1,627,460	-		6,037,600
May-21	2,048,840	322,620	92,190	-	2,466,560	227,520	23,750	3,970	268,000	131,770	986,020	-		6,571,240
Jun-21	2,390,910	366,160	67,630	-	3,813,570	154,230	(10,500)	2,090	278,340	127,520	280,340	(4,110)		7,466,180
Total	27,578,300	7,967,160	935,460	202,900	37,752,360	1,739,930	40,400	23,290	2,318,540	1,551,490	6,262,690	(256,530)		86,115,990

NOTES:

Hydro & Bath Co. are net of pumping energy
Solar includes Company solar and PURPA solar

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VIRGINIA ELECTRIC AND POWER COMPANY
JULY 2020 - JUNE 2021

FORECASTED SYSTEM FUEL EXPENSE ($000)

	Nuclear	Coal	Biomass	Heavy Oil	Combined Cycle	Combustion Turbine	Hydro & Bath Co.	Wind	Solar	NUG	Purchases	Power Sales	FTRs	Total
Jul-20	14,650	26,644	2,375	-	69,340	5,860			6,580	5,253	6,867	(773)	611	137,408
Aug-20	14,953	19,997	2,068	9,544	69,833	2,593			6,274	5,181	4,993	(482)	161	135,115
Sep-20	12,175	12,617	2,057	-	52,452	6,316			5,895	5,054	13,620	-	1,037	111,222
Oct-20	14,908	2,992	1,525	-	50,040	6,197			5,250	5,237	3,709	-	(242)	89,615
Nov-20	15,188	20,033	2,463	-	44,143	4,819			3,760	5,049	26,322	(636)	1,058	122,199
Dec-20	15,634	19,634	3,037	-	87,426	587			3,679	5,291	6,500	(4,392)	666	138,062
Jan-21	15,766	51,411	3,402	-	85,763	3,106			4,539	5,687	23,387	(6,086)	2,378	189,354
Feb-21	13,909	40,388	3,148	-	79,363	2,284			5,070	4,995	7,731	(180)	230	156,940
Mar-21	12,893	17,691	2,999	-	81,734	582			6,551	5,374	4,636	(2,111)	823	131,172
Apr-21	11,849	10,161	2,394	9,714	34,057	4,538			6,388	5,080	41,022	-	(393)	124,810
May-21	12,558	9,470	2,984	-	47,744	5,636			6,939	5,264	25,794	-	1,741	118,130
Jun-21	14,793	10,085	2,175	-	64,615	4,012			7,280	5,051	6,338	(157)	1,605	115,798
Total	169,274	241,122	30,630	19,258	766,508	46,531	-	-	68,206	62,518	170,918	(14,818)	9,676	1,569,824
												System Fuel Expense		1,569,824

NOTES: 'Combined Cycle' includes gas pipeline and storage fixed expenses
'Power Sales' include 75% margins for applicable off-system sales
Nuclear expense includes interim storage costs
Solar includes Company solar and PURPA solar

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VIRGINIA ELECTRIC AND POWER COMPANY
JULY 2020 - JUNE 2021

FORECASTED AVERAGE COST ($ PER MWH)

	Nuclear	Coal	Biomass	Heavy Oil	Combined Cycle	Combustion Turbine	Hydro & Bath Co.	Wind	Solar	NUG	Purchases	Power Sales	FTRs	Total
Jul-20	6.08	33.03	32.58	-	16.49	24.74	-	-	32.25	39.87	28.87	37.12	-	16.62
Aug-20	6.15	31.32	32.76	94.31	16.56	29.60	-	-	32.54	39.32	23.94	40.59	-	16.89
Sep-20	6.00	32.24	32.38	-	15.74	22.12	-	-	33.50	39.64	31.76	-	-	16.32
Oct-20	6.40	31.80	31.81	-	16.31	21.31	-	-	33.52	39.74	24.95	-	-	14.37
Nov-20	6.22	32.07	31.49	-	22.59	25.68	-	-	32.85	39.59	23.84	41.24	-	18.44
Dec-20	6.14	32.01	32.67	-	22.69	47.22	-	-	31.85	40.16	23.58	57.91	-	18.14
Jan-21	6.14	31.16	33.32	-	27.76	77.89	-	-	28.92	43.16	39.38	89.63	-	22.93
Feb-21	6.22	27.91	33.59	-	27.83	88.99	-	-	28.31	41.97	37.55	44.32	-	21.67
Mar-21	5.93	27.36	33.74	-	22.72	43.98	-	-	28.19	40.78	27.98	37.38	-	18.78
Apr-21	6.02	27.73	33.16	95.51	26.11	25.42	-	-	26.15	39.84	25.21	-	-	20.67
May-21	6.13	29.35	32.37	-	19.36	24.77	-	-	25.89	39.95	26.16	-	-	17.98
Jun-21	6.19	27.54	32.17	-	16.94	26.01	-	-	26.16	39.61	22.61	38.18	-	15.51
Total	6.14	30.26	32.74	94.91	20.30	26.74	-	-	29.42	40.30	27.29	57.76	-	18.23
												System fuel cost		18.23

NOTES: 'Combined Cycle' includes gas pipeline and storage fixed expenses
'Power Sales' include 75% margins for applicable off-system sales
Nuclear expense includes interim storage costs
Solar includes Company solar and PURPA solar

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VIRGINIA ELECTRIC AND POWER COMPANY
JULY 2020 - JUNE 2021
Fossil & Hydro and Nuclear Unit Performance Forecast

Unit	Equivalent Availability Rate (%)	Capacity Factor (%)	Planned Outage Period	Outage Description
Altavista-Biomass	82.7	72.2	[redacted]	Balance of Plant
				Boiler
Bear Garden	77.5	61.8		Combustion Turbine
				Boroscope
				Hot Gas Path
Brunswick	80.8	79.2		CT, Boiler, Balance of Plant
				CT, Boiler, Balance of Plant
Chesterfield 5	79.8	11.7		Threatened/Endangered Wildlife
Chesterfield 6	64.2	11.1		Threatened/Endangered Wildlife
				Boiler, Valves, MATS Inspection
Chesterfield 7	78.5	82.7		Threatened/Endangered Wildlife
				Boroscope
Chesterfield 8	78.3	85.4		Threatened/Endangered Wildlife
				Boroscope
Clover 1	86.0	15.2		Boiler, MATS Inspection
Clover 2	86.0	13.9		Boiler, Turbine, Generator
Gordonsville 1	82.2	75.2		Boroscope
				Turbine
				CI Inspection/Boroscope
				Boroscope
Gordonsville 2	66.0	61.7		Heat Recover Gas System
				Boroscope Inspection
Greensville 1	78.9	76.2		Combustion Inspection
				Turbine
Hopewell-Biomass	75.7	66.3		Balance of Plant
				Boiler, Valves, SCR Catalyst
Mt Storm 1	73.2	35.6		Boiler, Valves, SCR Catalyst
				Boiler, MATS Inspection, SCR Catalyst
Mt Storm 2	67.1	39.8		Boiler, Fuel System, Generator, SCR
				Boiler,Turbine, Generator, MATS Inspection
Mt Storm 3	89.0	40.2		Boiler, SCR Catalyst
North Anna 1	89.0	90.6		REFUELING
North Anna 2	90.3	91.8		REFUELING
Possum Point 5	97.8	1.6		
Possum Point 6	64.4	46.8		Boroscope
				Balance of Plants, Valves
				Balance of Plant, Boiler
Rosemary	95.9	0.6		
Southampton-Biomass	84.6	69.1		Balance of Plant
Surry 1	91.5	93.7		REFUELING
Surry 2	97.8	100.0		
VCHEC	45.4	16.3		Boiler
Warren	72.8	64.4		Combustion Inspection, Boiler, Balance of Plant
				Major, Turbine, Boiler, Balance of Plant, Valves
Yorktown 3	97.8	1.7		Control System

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VIRGINIA ELECTRIC AND POWER COMPANY

JULY 2020 - JUNE 2021

EQUIVALENT FORCED OUTAGE RATE (%)

Plant	Unit	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	PERIOD
ALTAVISTA	1													
BEARGRDN	1													
BRUNSWICK	1													
CHESTFLD	5													
CHESTFLD	6													
CHESTFLD	7													
CHESTFLD	8													
CLOVER	1													
CLOVER	2													
GORDON	1													
GORDON	2													
GREENSVL	1													
HOPEWELL	1													
MT STORM	1													
MT STORM	2													
MT STORM	3													
NANNA	1													
NANNA	2													
POSSUM	5													
POSSUM	6													
ROSEMARY	1													
SOUTHAMPTON	1													
SURRY	1													
SURRY	2													
VCHEC	1													
WARREN	1													
YORKTWN	3													

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VIRGINIA ELECTRIC AND POWER COMPANY
JULY 2020 - JUNE 2021
FORECASTED OFF-SYSTEM SALES MARGINS

	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	TOTAL
Sales Volume (MWh)	20,830	11,880	0	0	15,420	75,850	67,900	4,050	56,490	0	0	4,110	256,530
Sales Revenue ($)	783,456	506,754	0	0	642,917	4,426,764	6,119,965	181,531	2,139,727	0	0	158,967	14,960,080
Cost of Sales ($)	742,320	408,630	0	0	614,990	4,289,390	5,983,820	173,410	2,026,460	0	0	150,850	14,389,870
Margin ($)	41,136	98,124	0	0	27,927	137,374	136,145	8,121	113,267	0	0	8,117	570,210
Margin (75%) ($)	30,852	73,593	0	0	20,946	103,030	102,109	6,090	84,950	0	0	6,088	427,657
Cost of Sales plus 75% Margin ($)	773,172	482,223	0	0	635,936	4,392,420	6,085,929	179,500	2,111,410	0	0	156,938	14,817,527

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VIRGINIA ELECTRIC AND POWER COMPANY

JULY 2020 - JUNE 2021

FORECASTED FUEL REQUIREMENTS (MBTU)

Plant	Unit	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	TOTAL
ALTAVISTA	1													
BEARGRDN	1													
BRUNSWICK	1													
CHESTFLD	5													
CHESTFLD	6													
CHESTFLD	7													
CHESTFLD	8													
CLOVER	1													
CLOVER	2													
GORDON	1													
GORDON	2													
GREENSVL	1													
HOPEWELL	1													
MT STORM	1													
MT STORM	2													
MT STORM	3													
NANNA	1													
NANNA	2													
POSSUM	5													
POSSUM	6													
ROSEMARY	1													
SOUTHAMPTON	1													
SURRY	1													
SURRY	2													
VCHEC	1													
WARREN	1													
YORKTWN	3													

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VIRGINIA ELECTRIC AND POWER COMPANY
JULY 2020 - JUNE 2021
FORECASTED HEAT RATES (BTU / KWH)

Plant	Unit	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	PERIOD
ALTAVISTA	1	[redacted]												
BEARGRDN	1	[redacted]												
BRUNSWIK	1	[redacted]												
CHESTFLD	5	[redacted]												
CHESTFLD	6	[redacted]												
CHESTFLD	7	[redacted]												
CHESTFLD	8	[redacted]												
CLOVER	1	[redacted]												
CLOVER	2	[redacted]												
GORDON	1	[redacted]												
GORDON	2	[redacted]												
GREENSVL	1	[redacted]												
HOPEWELL	1	[redacted]												
MT STORM	1	[redacted]												
MT STORM	2	[redacted]												
MT STORM	3	[redacted]												
NANNA	1	[redacted]												
NANNA	2	[redacted]												
POSSUM	5	[redacted]												
POSSUM	6	[redacted]												
ROSEMARY	1	[redacted]												
SOUTHAMPTON	1	[redacted]												
SURRY	1	[redacted]												
SURRY	2	[redacted]												
VCHEC	1	[redacted]												
WARREN	1	[redacted]												
YORKTWN	3	[redacted]												

VIRGINIA ELECTRIC AND POWER COMPANY
FEB 2020 - JUN 2020

SYSTEM ENERGY (MWH)

	Nuclear	Coal	Biomass	Heavy Oil	Combined Cycle	Combustion Turbine	Hydro & Bath Co.	Wind	Solar	NUG	Power Purchases	Sales	FTRs	Total
Feb-20	2,381,150	246,580	35,060	-	3,932,200	32,800	48,310		126,920	123,270	412,210	-		7,338,500
Mar-20	2,548,060	249,840	30,090	-	3,602,440	24,310	(25,080)		172,260	131,770	124,410	(23,190)		6,834,910
Apr-20	2,290,270	562,060	49,960	101,430	1,704,280	300,880	39,300		175,450	127,520	577,820	-		5,928,970
May-20	1,827,690	502,900	36,110	-	2,675,450	280,300	8,840		191,560	131,770	798,720	-		6,453,340
Jun-20	2,270,240	329,000	37,540	-	4,038,740	161,410	(10,930)		201,400	127,520	201,940	(3,370)		7,353,490
Total	11,317,410	1,890,380	188,760	101,430	15,953,110	799,700	60,440	-	867,590	641,850	2,115,100	(26,560)	-	33,909,210

SYSTEM FUEL EXPENSE ($000)

	Nuclear	Coal	Biomass	Heavy Oil	Combined Cycle	Combustion Turbine	Hydro & Bath Co.	Wind	Solar	NUG	Power Purchases	Sales	FTRs	Total
Feb-20	14,584	8,242	1,197	1	83,743	2,449			4,219	5,267	10,547	-	2120	132,368
Mar-20	15,810	8,560	1,022	1	65,782	738			5,770	5,691	3,786	(638)	1202	107,724
Apr-20	13,735	17,862	1,646	9,014	37,528	6,649			5,606	5,473	13,028	-	1,406	111,948
May-20	11,387	15,994	1,141	1	48,502	6,256			6,110	5,691	20,295	-	1,222	116,600
Jun-20	13,802	11,167	1,200	1	64,614	4,197			6,447	5,459	5,089	(132)	1,605	113,450
Total	69,318	61,826	6,207	9,019	300,169	20,289	-	-	28,152	27,581	52,745	(769)	7,555	582,092

System Fuel Expense 582,092

AVERAGE COST ($ PER MWH)

	Nuclear	Coal	Biomass	Heavy Oil	Combined Cycle	Combustion Turbine	Hydro & Bath Co.	Wind	Solar	NUG	Purchases	Power Sales	FTRs	Total
Feb-20	6.12	33.43	34.14	N/A	21.30	74.65	-	-	-	42.73	25.59	N/A		18.04
Mar-20	6.20	34.26	33.95	N/A	18.26	30.37	-	-	-	43.19	30.43	27.49		15.76
Apr-20	6.00	31.78	32.95	88.87	22.02	22.10	-	-	-	42.92	22.55	N/A		18.88
May-20	6.23	31.80	31.61	N/A	18.13	22.32	-	-	-	43.19	25.41	N/A		18.07
Jun-20	6.08	33.94	31.98	N/A	16.00	26.00	-	-	-	42.81	25.20	39.08		15.43
Total	6.12	32.71	32.88	88.92	18.82	25.37	-	-	-	42.97	24.94	28.96		17.17

System fuel cost 17.17

NOTES: Hydro & Bath Co. MWh are net of pumping energy
'Combined Cycle' Expense includes gas pipeline fixed expenses
'Power Sales' Expense include 75% margins for applicable off-system sales
Solar includes Company solar and PURPA solar

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VIRGINIA ELECTRIC AND POWER COMPANY
FEBRUARY 2019 - JANUARY 2020
LOAD AND SALES (MWH)

ACTUALS

	System Energy Requirement	Total System Sales	Virginia Jurisdictional Sales
Feb-19	7,082,228	6,642,666	5,424,935
Mar-19	7,320,791	6,897,478	5,584,201
Apr-19	6,328,143	5,921,460	4,706,557
May-19	7,382,251	6,907,675	5,559,012
Jun-19	7,621,191	7,521,106	6,032,112
Jul-19	9,043,016	8,688,705	7,155,997
Aug-19	8,440,636	8,087,979	6,524,387
Sep-19	7,460,538	7,287,012	5,788,286
Oct-19	6,623,772	6,387,696	5,087,191
Nov-19	6,981,131	6,707,800	5,428,565
Dec-19	7,630,444	7,445,868	6,074,038
Jan-20	7,576,237	7,583,223	6,082,840
Total	89,490,377	86,078,668	69,448,121

FORECASTED

	System Energy Requirement	Total System Sales	Virginia Jurisdictional Sales
Feb-19	7,515,833	7,065,905	5,609,553
Mar-19	7,450,035	6,854,537	5,384,979
Apr-19	6,435,722	5,850,341	4,444,306
May-19	6,840,649	6,274,775	4,782,274
Jun-19	7,872,236	7,298,219	5,722,139
Jul-19	8,807,333	8,558,338	6,829,668
Aug-19	8,596,326	8,294,665	6,598,998
Sep-19	7,131,070	6,862,041	5,347,419
Oct-19	6,418,750	6,184,415	4,709,054
Nov-19	6,599,241	6,327,646	4,938,452
Dec-19	7,941,169	7,658,537	6,135,356
Jan-20	8,410,746	8,072,476	6,553,003
Total	90,019,111	85,301,894	67,055,200

VARIANCE

	System Energy Requirement	Total System Sales	Virginia Jurisdictional Sales
Feb-19	(433,606)	(423,239)	(184,617)
Mar-19	(129,244)	42,941	199,222
Apr-19	(107,579)	71,119	262,251
May-19	541,601	632,900	776,738
Jun-19	(251,045)	222,887	309,974
Jul-19	235,683	130,368	326,328
Aug-19	(155,690)	(206,686)	(74,611)
Sep-19	329,468	424,972	440,867
Oct-19	205,022	203,281	378,137
Nov-19	381,890	380,154	490,113
Dec-19	(310,725)	(212,669)	(61,318)
Jan-20	(834,509)	(489,252)	(470,162)
Total	(528,734)	776,775	2,392,921

VIRGINIA ELECTRIC AND POWER COMPANY
FEBRUARY 2019 - JANUARY 2020

SYSTEM ENERGY (MWH)

	Nuclear	Coal	Biomass	Heavy Oil	Steam Gas	Combined Cycle	Combustion Turbine	Hydro & Bath Co.	Solar	NUG	Purchases	Power Sales	FTRs	Total
Feb-19	2,323,364	178,631	62,268	-	-	3,674,995	9,327	129,925	62,755	247,910	458,853	(66,800)		7,082,228
Mar-19	1,978,186	329,836	69,093	-	-	3,364,676	24,576	171,094	76,350	226,469	1,081,231	(699)		7,320,791
Apr-19	2,262,436	285,655	85,042	-	-	1,672,605	27,644	141,860	100,429	106,707	1,645,765	-		6,328,143
May-19	2,539,145	857,679	104,019	-	-	2,142,980	82,090	59,599	119,295	93,431	1,397,688	(13,674)		7,382,251
Jun-19	2,390,411	918,648	80,487	-	-	3,950,489	54,513	91,550	119,883	99,604	196,459	(280,934)		7,621,191
Jul-19	2,487,488	1,195,418	130,008	19,734	-	4,272,307	251,850	(1,221)	134,424	98,767	503,455	(47,194)		9,043,016
Aug-19	2,505,695	750,155	103,102	68,093	-	4,140,181	186,774	(25,502)	110,908	89,372	555,534	(53,676)		8,440,636
Sep-19	1,974,957	406,571	98,098	-	-	3,640,796	165,212	(22,416)	97,810	99,246	1,040,882	(38,616)		7,480,538
Oct-19	2,257,879	414,243	73,350	40	-	1,446,014	227,456	(7,672)	76,953	71,973	2,060,454	3,082		6,823,772
Nov-19	1,884,618	882,746	46,851	-	-	1,704,509	100,179	15,555	65,241	97,346	2,184,288	-		6,981,131
Dec-19	2,577,570	336,052	73,108	-	-	3,525,512	36,992	35,675	59,355	115,830	915,016	(44,667)		7,630,444
Jan-20	2,582,885	702,749	58,643	-	-	4,118,901	16,374	43,688	87,860	110,451	163,640	(288,914)		7,576,237
Total	27,764,574	7,259,383	981,865	87,868	-	37,853,965	1,182,987	632,114	1,091,345	1,455,108	12,203,263	(832,092)	-	89,490,377

SYSTEM FUEL EXPENSE ($000)

	Nuclear	Coal	Biomass	Heavy Oil	Steam Gas	Combined Cycle	Combustion Turbine	Hydro & Bath Co.	Solar	NUG	Purchases	Power Sales	FTRs	Total
Feb-19	14,512	6,149	3,943	-	262	109,602	1,000		2,953	7,748	16,217	(1,295)	1,798	162,388
Mar-19	12,202	10,803	4,114	-	272	89,383	1,753		3,388	7,260	38,782	(30)	1,355	167,918
Apr-19	14,476	9,039	4,438	-	-	43,202	1,425		4,570	5,212	45,483	-	(197)	127,846
May-19	16,090	23,895	5,150	-	-	49,868	2,992		5,405	3,869	42,286	(132)	2,840	149,652
Jun-19	15,971	29,483	3,623	-	-	76,381	1,853		5,318	4,667	(2,352)	(1,320)	(8,166)	135,124
Jul-19	16,078	37,128	5,764	989	-	55,733	30,689		5,843	4,589	19,798	(462)	1,342	176,610
Aug-19	16,081	23,553	4,317	5,541	-	73,094	5,053		4,952	4,114	17,238	(566)	326	153,943
Sep-19	11,889	13,146	3,869	-	-	63,810	5,055		4,382	4,762	39,627	(722)	2,842	148,539
Oct-19	13,317	13,900	2,816	50	-	27,955	7,288		3,522	3,662	61,695	67	896	134,223
Nov-19	11,282	26,497	1,864	-	(9)	46,823	4,065		3,014	5,271	70,130	-	1,742	168,716
Dec-19	15,596	11,824	2,992	10	-	99,398	1,539		2,789	5,221	28,306	(922)	756	167,476
Jan-20	15,108	24,888	3,573	(10)	-	108,291	351		3,125	5,288	6,826	(5,990)	1,484	167,237
Total	172,580	229,885	46,484	6,581	524	843,419	63,062		49,260	61,882	384,014	(11,372)	8,993	1,857,671

AVERAGE COST ($ PER MWH)

	Nuclear	Coal	Biomass	Heavy Oil	Steam Gas	Combined Cycle	Combustion Turbine	Hydro & Bath Co.	Solar	NUG	Purchases	Power Sales	FTRs	Total
Feb-19	6.25	34.23	63.33	N/A	N/A	29.82	107.26			31.25	35.34	19.38		22.93
Mar-19	6.17	32.75	59.54	N/A	N/A	26.56	71.31			32.06	35.85	43.49		22.94
Apr-19	6.40	31.64	52.19	N/A		25.83	51.54			48.85	27.64	N/A		20.20
May-19	6.34	27.66	49.51	N/A		23.32	36.44			41.41	30.25	9.67		20.27
Jun-19	6.66	32.07	45.02	N/A		19.33	33.99			48.66	-11.97	4.70		17.73
Jul-19	6.46	31.06	44.33	50.13		13.05	121.86			47.43	38.32	9.78		19.53
Aug-19	6.42	31.40	41.88	81.38		17.65	25.66			46.03	31.03	10.55		18.24
Sep-19	6.02	32.33	40.26	N/A		17.53	30.59			47.98	38.07	18.69		19.84
Oct-19	5.90	33.55	38.39	1246.60		19.33	32.04			51.16	29.94	21.72		20.26
Nov-19	5.98	30.02	38.97	N/A	N/A	27.35	40.57			54.15	32.11	N/A		24.17
Dec-19	6.05	34.59	40.93	N/A		28.19	41.60			45.08	30.93	20.65		21.95
Jan-20	5.85	35.13	60.92	N/A		26.29	21.45			47.87	41.71	20.73		22.07
Total	6.22	31.67	47.32	74.89		22.40	52.86			42.53	31.47	13.67		20.76

NOTES:

Hydro & Bath Co. MWh are net of pumping energy
Combustion Turbine' and 'Combined Cycle' actual expenses include gas pipeline fixed expenses
'Power Sales' Expense includes 75% margins for applicable off-system sales
Solar includes Company solar and PURPA solar

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VIRGINIA ELECTRIC AND POWER COMPANY
FEBRUARY 2019 - JANUARY 2020
Fossil & Hydro and Nuclear Unit Performance

Unit	Equivalent Availability Rate (%)	Capacity Factor (%)	Actual/Planned Outage Period	Outage Description
Altavista-Biomass	77.5	63.0	[redacted]	Planned Outage
Bear Garden	73.0	66.6		Planned Outage Spring 2019
Brunswick 1	74.6	70.4		Fall 2019 Planned Outage
				Spring 2019 Planned Outage
Chesterfield 5	46.8	8.4		Planned Outage - Boiler Tube Repairs and BOP activities
Chesterfield 6	52.0	10.6		Planned Outage - Substation transformer replacement and NERC relay testing
				Planned Outage - BOP
				Planned Outage - Substation transformer replacement and NERC relay testing
Chesterfield 7	79.5	85.6		Planned Outage - Borescope Inspection
				Planned Outage - Borescope Inspection
Chesterfield 8	76.7	74.1		
Clover 1	60.5	16.5		Spring 2019 Planned Outage
				Unit 1 and Unit 2 Planned Outage for Isophase Duct repairs
Clover 2	74.0	15.8		Planned outage to replace SSC floor and flights
				Unit 1 and Unit 2 Planned Outage for Isophase Duct repairs
Gordonsville 1	84.1	70.8		SCR catalyst replacement, minor generator inspections, safety valve inspection, BOP Maintenance and MKV HMI Replacement.
				Jurisdictional Inspection
Gordonsville 2	82.9	66.9		Minor generator inspections, safety valve inspections, BOP Maintenance and MKV HMI Replacement
				Jurisdictional Inspection
				Minor generator inspections, safety valve inspections, BOP Maintenance and MKV HMI Replacement
Greensville 1	70.8	85.4		Spring 2019 Planned Outage
				Planned Fall Outage - GT Boroscope, Generator Inspection, Warranty Repair
Hopewell-Biomass	74.8	58.9		PO Fuel system, boiler wash, baghouse cleaning, HMI replacement and BOP repair.
Mt Storm 1	60.5	37.7		Spring 2019 Planned Outage
Mt Storm 2	59.7	37.1		Spring 2019 Planned Outage
Mt Storm 3	53.6	25.4		2019 Fall Planned Outage
North Anna 1	93.6	95.2		Scheduled Refueling Outage
North Anna 2	88.5	90.4		Scheduled Refueling Outage
Possum Point 5	69.5	0.5		
Possum Point 6	64.8	53.9		Fall 2019 Planned Outage
				Planned Outage
Rosemary	84.6	0.1		
Southampton	81.4	60.3		Fall Planned Outage
Surry 1	88.5	90.4		Scheduled Refueling Outage
Surry 2	99.9	102.6		
VCHEC	56.8	21.8		Planned Outage
Warren County	80.0	73.9		FALL 2019 OUTAGE
				Spring 2019 Outage
				Fall 2019 outage
Yorktown 1	5.8	0.0		
Yorktown 2	100.0	0.3		
Yorktown 3	71.2	0.8		Maintenance Outage- Substation Work

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VIRGINIA ELECTRIC AND POWER COMPANY
FEBRUARY 2019 - JANUARY 2020
ACTUAL FUEL REQUIREMENTS (MBTU)

Plant	Unit	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Period
ALTAVIST	1													
BEAR GARDEN	1													
BRUNSWICK	1													
CHESTFLD	5													
CHESTFLD	6													
CHESTFLD	7													
CHESTFLD	8													
CLOVER	1													
CLOVER	2													
GORDON	1													
GORDON	2													
GREENSVILLE	1													
HOPEWELL	1													
MT STORM	1													
MT STORM	2													
MT STORM	3													
NANNA	1													
NANNA	2													
POSSUM	5													
POSSUM	6													
ROSEMARY	1													
SOUTHAMP	1													
SURRY	1													
SURRY	2													
VCHEC	1													
WARREN	1													
YORKTWN	1													
YORKTWN	2													
YORKTWN	3													

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FEBRUARY 2019 - JANUARY 2020
EQUIVALENT FORCED OUTAGE RATE (%)

Plant	Unit	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Period
ALTAVIST	1													
BEAR GARDEN	1													
BRUNSWICK	1													
CHESTFLD	5													
CHESTFLD	6													
CHESTFLD	7													
CHESTFLD	8													
CLOVER	1													
CLOVER	2													
GORDON	1													
GORDON	2													
GREENSVILLE	1													
HOPEWELL	1													
MT STORM	1													
MT STORM	2													
MT STORM	3													
NANNA	1													
NANNA	2													
POSSUM	5													
POSSUM	6													
ROSEMARY	1													
SOUTHAMP	1													
SURRY	1													
SURRY	2													
VCHEC	1													
WARREN	1													
YORKTWN	1													
YORKTWN	2													
YORKTWN	3													

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VIRGINIA ELECTRIC AND POWER COMPANY
FEBRUARY 2019 - JANUARY 2020
HEAT RATES (BTU / KWH)

Plant	Unit	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Period
ALTAVIST	1													
BEAR GARDE	1													
BRUNSWICK	1													
CHESTFLD	5													
CHESTFLD	6													
CHESTFLD	7													
CHESTFLD	8													
CLOVER	1													
CLOVER	2													
GORDON	1													
GORDON	2													
GREENSVILLE	1													
HOPEWELL	1													
MT STORM	1													
MT STORM	2													
MT STORM	3													
NANNA	1													
NANNA	2													
POSSUM	5													
POSSUM	6													
ROSEMARY	1													
SOUTHAMP	1													
SURRY	1													
SURRY	2													
VCHEC	1													
WARREN	1													
YORKTWN	1													
YORKTWN	2													
YORKTWN	3													

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VIRGINIA ELECTRIC AND POWER COMPANY
FEBRUARY 2019 - JANUARY 2020
Fossil & Hydro and Nuclear Unit Performance

ABNORMAL OPERATING EVENTS
**** CONFIDENTIAL****

Unit Name	Start Date	End Date	Duration (Days)	Description
Bear Garden				Steam Turbine Before Seat Drain Valves
Chesterfield 6				Steam Leak In Main Steam Header
Clover 1				Boiler Tubes Leaks
Clover 1				Boiler Tubes Leaks
Mt Storm 1				Feedwater piping leak
Mt Storm 2				Boiler Tubes Leaks
Mt Storm 2				Feedwater piping leak
Rosemary				HRSG tube leaks
VCHEC				Boiler Tubes Leaks
VCHEC				Boiler Tubes Leaks

NOTE: Events over 100 hours